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RURAL OECONOMY:

OR,

ESSAYS

ON THE

Practical Parts of Husbandry.

BRITISH MUSEUM

RURAL OECONOMY:

OR,

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ON THE

Practical Parts of Husbandry.

Designed to explain several of the most important Methods of conducting FARMS of various Kinds; including many useful Hints to GENTLEMEN FARMERS relative to the œconomical Management of their Business.

Containing, among other ENQUIRIES,

Of that Proportioned Farm, which is of all others the most profitable.
Of the best Method of conducting Farms that consist all of Grass, or all of Arable Land.
Of the Means of keeping the Year round the most Cattle on a given Quantity of Land.
Considerations on the Oeconomical Conduct of Gentlemen Farmers.
Of the cheapest Way of manuring Land.
Of the Comparative Profit of Farming different Soils.
Of the New Husbandry.
Of Periodical Publications concerning Rural Oeconomics.

To which is added,

The RURAL SOCRATES:

Being MEMOIRS of

A COUNTRY PHILOSOPHER.

By the AUTHOR of the FARMER's LETTERS.

Arthur Young

Hoc Opus, *hoc* Studium *parvi properemus et ampli;*
Si Patriæ *volumus, si nobis vivere cari.*

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MVSEVM
BRITAN
NICVM

Rural Oeconomy, &c.

THERE are few ſubjects that have employed more writers than agriculture, and few that have been treated in a manner ſo little ſatisfactory to readers of real practice. In the ſketches which I have already ventured to the public eye (as well as the papers now before me), I have attempted to elucidate many points which preceding authors have totally overlooked.

The œconomical management of a farm is indiſputably a point of no

trifling importance; for the beſt inſtructions may be laid down to cultivate the moſt profitable of vegetables, and in the cleareſt and moſt ſenſible manner;——yet, all will ſignify but little, if the general tenour of a farmer's conduct be not ſo well founded on œconomical principles, as at all times *to be able* to execute what he thinks, and is convinced, is right.

But the reader will allow me to uſe the words *Rural Oeconomy* in their enlarged ſenſe, and not merely confined to the practice of *frugality*, which is the common acceptation of *œconomy*. *Frugality* conveys but a narrow idea; a man may undoubtedly be very frugal, and yet a vile huſbandman: we muſt therefore underſtand by *œconomy*, the ſyſtem of GENERAL MANAGEMENT, which embraces a variety of objects, and all equally important. The following eſſays are deſigned to explain many parts of this general

general management, and to attempt to reduce multifarious, fugitive ſubjects, to ſome degree of order, and even principles. This deſign, whether meritorious or not, is new; for the ſlight random touches that are met with in a few books, however juſt and pleaſing, are totally incomplete; not being meant by their authors as any thing further than thoſe chance ideas, which occur accidentally when writing on foreign ſubjects.

So extremely barren do I find my collection of books of huſbandry, on this ſubject, that upon reviſion of theſe papers, I venture to aſſure the reader no book ever publiſhed has afforded me a ſingle page.

I do not mention this, as a ſign of any peculiar merit in my own work; for doubtleſs I could have *enriched* it from thoſe of others. When any matter has been much treated of by former writers, it is incumbent on a

new one to pay a proper deference to *authority*, and make his acknowledgements to former authors; but I have no ſuch duty to fulfil; the writers on agriculture, whoſe works I have read, have ſlighted this ſubject, or at leaſt neglected it: if I was to extract from all with which I am acquainted, every paragraph they contain, I ſhould not find the amount to be fifty pages; and half may with due modeſty be ſuppoſed not worth tranſcribing.

If my ſubject was more extenſive, the uſe of others works would be no trifle; I am far from talking of the ſupply of my own page without aſſiſtance, through vanity: on the contrary, no one of common ſenſe can deny the vaſt advantage of *judicious collections*. I know not for inſtance of a more uſeful work, than a collection of all the *truly valuable* in every book of huſbandry; that the benefit of reading might be reduced to the labour of a few months, inſtead

ſtead of twice as many years. But the miſchief of collectors, is the ſaving the chaff as well as the corn. We have had twenty collections, and bodies of huſbandry; and beyond all doubt, every *practical* reader will find in each of them as much rubbiſh as good ſenſe. The misfortune is, very good writers ſometimes recommend very ridiculous practices; now a perſon who collects from the works of all, ſhould ſit in judgment on every article, and always diſtinguiſh between the metal and the droſs; if the latter is always rejected, and the former univerſally retained, there can be no doubt of the utility of the collection.

Reſpecting the preſent ſheets.

The principal part of the laſt ſeven years I have lived in ſuch retirement, and given ſo unlimited an attention to matters of huſbandry, that my conſtant employment, as well as amuſement, when out of my fields, has

been the regiſtering experiments; minuting remarks on moſt of the branches of agriculture; and forming calculations relative to rural œconomy:—and my papers multiplied until they grew into volumes. I have often altered and corrected them—and in proportion as I gained experience, endeavoured to improve them. Upon reviewing ſome of theſe works, I have been perhaps imprudent enough to think they might be of uſe to others as well as myſelf, and venture theſe eſſays (the product of my leiſure hours ſome years ago) under that idea to the public eye.

It has been my endeavour to elucidate ſeveral points in rural œconomy, at preſent much in the dark; and this elucidation I offer wholly as the work of experience: in other words, I have minuted the ſituations in which I have more than once found the want of advice—not the vulgar, *marked* advice of every puppy that thinks himſelf quali-

fied

fied to offer it, but the ſober, rational reſult of others experience.

I am in ſuch a ſituation, it is of importance which way I determine; you have been in the ſame, how did you act, and what was the conſequence? This is the only ſenſible way of aſking advice in any affair whatever. Nor is there any thing ſo paltry, ſo futile, and ſo falſe, as the common cant condemnation—*Aye! he would never take any advice!* As if it was within the bounds of humanity for one perſon *fairly* to execute another's ideas in his own affairs, and contrary to his own opinion.

I take a hint from this idea of general advice, and offer mine in huſbandry matters, merely as the tranſcript of my experience; and when I wander beyond the experience (as is abſolutely neceſſary ſometimes), yet I aim at being conſiſtent with it. If a perſon will but ſpeak plain facts in an honeſt manner, mankind

muſt be the better for him; it is affectation which prevents this ingenuouſneſs, which gives the flouriſhing of reaſoning and conjectures inſtead of facts, and obſervations founded on fact.

There would be an impropriety in terming the intelligence I here venture to the farming reader, *experiments*; and yet I deduce them ſo much from experience, that, except when neceſſarily founded on *general* obſervation, they may in no ſlight degree be called experimental.

All that is generally meant by œconomical practice, is perfectly underſtood by common farmers; ſometimes they are much more expert in this art than they ought to be, in extending the frugality of their *houſes* to their *farms*. It is very difficult for people in narrow circumſtances, who are neceſſitated to be frugal within doors, not to extend their ſaving ideas too much without. For this reaſon,

reaſon, utility requires me to addreſs the common farmers more particularly on the *general* œconomy; whereas, to gentlemen farmers, it is neceſſary to ſpecify both general and particular management.

The following eſſays I do not offer as a complete ſyſtem of all the ſubjects treated of; ſuch a work would require an infinitely greater compaſs than this ſmall volume. I fix upon ſeveral ſtriking points, which experience has told me are very important, and concerning which moſt writers are altogether ſilent: both theſe reaſons will, I apprehend, juſtify the choice.

The reader muſt not look for a connection between every eſſay; that was not poſſible; neither would it be uſeful: many of the ſubjects are diſtinct; and it is ſomething favourable to certain readers, that they need not follow the connection of a whole volume, but conſult only the part they want.

ESSAY

ESSAY I.

Of that proportioned Farm, which is of all others the moſt profitable.

IHERE enter upon a ſubject in which my own ideas have not that perſpicuity I could wiſh, but an attentive diſquiſition will, at the ſame time, give them a greater clearneſs, and explain to the reader ſeveral points totally unnoticed by all former writers. In this enquiry I do not mean to ſhew what farm will yield the greateſt income, becauſe, in moſt caſes, *the largeſt* will, in that reſpect, be *the beſt*; but I would diſcover if there be not a peculiar *proportion* between the parts, remarkably favourable to profit and conveni-

venience; and this not in farms only of a certain rent, but in all ſorts.

The firſt diviſion of a farm is into arable and paſture land; this at once points out a multitude of circumſtances in the arrangement of a buſineſs that call undoubtedly for ſome proportion of the kind, which I am conſidering. The arable land requires draught cattle to cultivate it, and carry out its products; and the graſs muſt be applied to the feeding or fattening of other cattle. If a farm is totally arable, or totally graſs, the proportions, of which I am ſpeaking, do not embrace (eſpecially in the latter caſe) ſo many circumſtances, as they otherwiſe would; but many nevertheleſs remain.

The want of proportion is to be obſerved every day. Nothing more common than to ſee farmers buying hay under many diſadvantages: this reſults entirely from a diſproportion between

between the graſs and arable lands of a farm.

Oats they often purchaſe, and perhaps with a heavy carriage upon them; this comes from a want of proportion in the arable crops.

Cattle are very often put out to joiſt in a neighbour's ſtraw yard; by which means much manure is loſt: this evidently ariſes from the want of a requiſite attention to the proportion between the cattle and the corn crops.

Many farmers cultivate turneps with great care, and raiſe fine crops of them, but want cattle in the winter to feed them to advantage: they are then to be ſold to ſomebody elſe; and, as they *muſt* be ſold, it is twenty to one, to diſadvantage. The want of proportion is here plain enough.

In many ſituations, the dependance of a whole farm for manure is on the ſtraw yard: if, in ſuch a caſe,

the

the farmer does not properly proportion his arable crops which feed cattle, to thoſe which litter the yard, and both theſe to the quantity of his graſs fields, the farm will be long enough before it gets well manured.

Theſe cauſes might be multiplied almoſt *ad infinitum*; but a few are ſufficient to explain the idea of *proportion*.

Farms vary ſo prodigiouſly, that no abſolutely accurate corollaries can be drawn from the moſt judicious reaſoning on this ſubject: the only method of treating it, is to ſtate ſome points, and then reaſon upon the proportion between thoſe and others.

Suppoſe in the ſtocking of a ſmall farm, that twenty acres of arable land per horſe, is the quantity to be managed properly by the team; four horſes will, in that caſe, cultivate eighty acres of arable. Now what are the proportions which can be drawn from this one fact?

Let me here remark that I ſtate, in all theſe points, not what is every where found in common management, but what ought to be. Many farmers are ſuch bad managers, that ſcarce one proportion is to be found throughout their farm.

Eighty acres of arable land, managed by four horſes, may, if the ſoil is not heavy, be thrown into fourths; one ſown every year with turneps, one with ſpring corn, one with wheat, and one with clover. If the ſoil is heavy, a fallow, or ſome other fallow crop, ſhould be ſubſtituted inſtead of turneps. If a fourth be not clover, the four horſes cannot manage the farm properly.

Before we proceed farther, new proportions ariſe: the clover, we will ſuppoſe, totally keeps the horſes in green food and hay; this is common huſbandry, wherever clover is known. We will allow each horſe two tons of hay per winter, which will

leave

leave him a little to ſpare for ſummer. The four will, therefore, eat eight tons; this, at two mowings, may be reaſonably called four acres. For the ſummer food, we will allow the four horſes ſix acres of green clover. Thus the whole quantity eat by the four horſes is ten acres.

As much more is to ſpare; hence we muſt ſuppoſe other cattle to be kept: but further—there are twenty acres of wheat, twenty of ſpring corn, and twenty of turneps; beſides twenty acres of ſtubble for littering the yard. Part of the ſtraw of the wheat muſt be applied to littering the four horſes, the reſt given to the cattle. Here, therefore, is the following winter food:

20 acres of turneps,
20 tons of clover hay,
20 acres of ſpring corn ſtraw,
and part of 20 acres of wheat ſtraw.

The next enquiry is the cattle theſe will winter. The food is all well adapted

adapted to various kinds; but I ſhall ſuppoſe them heifers, or ſteers, or oxen, for fatting. The order in which they ſhould be fed, is to give them the wheat ſtraw firſt with ſome turneps; next the ſpring corn ſtraw with ſome turneps; and then the clover hay with the reſt of the turneps; which progreſſion will carry them forward in fleſh, and get them in fine order to turn into graſs to complete the fatting. The number I ſhould aſſign (in this management) to ſuch a quantity of food is 30 head. Thirty middling ſteers would be well wintered on this food. If the beaſts are above the middling ſize, about 20 or 25. The reader ſhould remember they are not fatted; only *kept*; all that is wanting, is to keep them rather on the improving hand.

The quantity of winter food points out in this manner the number of cattle to be kept, and this will diſcover the quantity of graſs land ſuch

a farm ought to have: this is at once determined, for we may allow an acre per beaſt, or 30 acres: but it would be prudent in ſuch a farmer always to have a ſtock of hay before hand, to uſe in caſe of accidents, ſuch as a bad time, to make his clover hay, &c. &c. &c. for this purpoſe he ſhould have five acres of mowing graſs every year; or, in all, thirty-five.

Thus we find the number of horſes a clue to diſcover the whole œconomy of a farm. I have taken this as one inſtance to explain what I mean by *proportion*. It plainly appears from hence, that it is a matter of vaſt conſequence: almoſt any other point to begin with, would have yielded the ſame information; for inſtance, the annual quantity of wheat ſown, of ſpring corn, &c. &c. or from different inſtances. But the connection is perſued in a clearer manner from the number of horſes.

If any of the proportions in this inſtance are broken, the whole chain is affected; take one horſe from the four, all is varied at once; inſtead of a proper quantity of arable land per horſe, a larger, or a leſs portion is aſſigned; the very ſtock of the graſs land is at once affected; ſo much does every part of a well arranged farm depend on each other.

Great variations are made by common farmers, without any important effects enſuing: this may ſeem to contradict my aſſertions; but moſt of them enter into farms with ſo little idea of juſt proportions, that ſuch never exiſted in their farms, conſequently, there were none to break; and yet common farmers cannot damage even their faulty proportions, without feeling the ill effects. But they are, in general, ſo burthened with a too great quantity of land for their fortunes to manage,

that they ſeldom remedy any thing of that ſort. Inſtead of the profitable management of turneps and clover, they very often omit thoſe crops, for want of money to purchaſe the cattle to eat them: the land does not from this omiſſion lay fallow, but is ſown with corn; thus the ſoil is exhauſted, and all general management preſently in confuſion.

Having thus explained, by an inſtance, what is the proper meaning of the proportions of a farm in this caſe; I ſhall, in the next place, ſketch ſuch proportions as I apprehend to be the moſt profitable. In this enquiry ſome latitude muſt be uſed, becauſe real farms are ſo prodigiouſly various. Perhaps a mere grazing farm may be found, in many countries, the moſt profitable of all that are commonly managed; but I ſhall reject thoſe, as they would furniſh, in this enquiry, very few uſeful concluſions. I ſhall therefore ſuppoſe a farm that contains

tains many parts, and is conducted on a various plan, embracing ſome new diſcoveries in agriculture; proper, in a word, for a gentleman, or, at leaſt, a farmer, whoſe ideas are more enlarged, than thoſe of many of his bretheren: but it will be neceſſary, at the ſame time, ſo to ſuppoſe matters, that if a common one hired ſuch a farm, the ſketch I offer may be of ſervice, though he rejects any articles of culture, but ſuch as are abſolutely uſual.

It would lead me into too wide a diſquiſition to determine, of various ſized farms, which is proportionably the moſt profitable: all that utility here requires, is to ſtate proportions, that one well deſigned both for convenience and profit, and of ſuch an extent as not to fall below the proportional profit of longer farms, for want of more land. To have every thing complete, and well contrived, for mutual ſupport, a farm muſt ne-

ceſſarily be a large one. But here I am ſenſible of the diſadvantage of moving upon untrodden ground, and feel at every ſtep the want of former writers, to take warning by their miſtakes; nor is it any mortification to me to think that my humble labours will, in future times, be no more than a canvaſs for others to paint on. I ſhall at leaſt be a canvaſs; which is more than any former writer is to me. The want of ſomething of a guide of this ſort, occaſions my entering into more explanations than otherwiſe I ſhould. The perſon who enters on a ſubject that has been already treated by others, is in little want of explanations; for, as the firſt writers generally explain moſt, he takes that advantage, and falls into the hands of readers, who know enough of the ſubject to want no introductory explanations. This is not my caſe; I muſt therefore proceed accordingly.

A ſmall farm may (as far as it extends) be as profitable as a large one; but we are not to reaſon upon uncommon inſtances; many circumſtances of management require a large buſineſs to be carried on with advantage. A few will prove it. The neighbourhood of a great city, or town, requires that the farmers purchaſe manures; but that is a work that goes on very poorly, if a team is not kept on purpoſe.

It is but a poor buſineſs that will not employ diſtinct teams for both plowing and harrowing, and odd cattle beſides for rolling. A buſineſs ſhould be conſiderable enough alſo for the employment of a bailey; not one that has the whole management of the farm in his hands, but who is kept for the mere underwork, the overſeeing labourers, &c. &c. &c. I give theſe inſtances by no means as a complete liſt, only to ſhew that there are points in which a great farm

has the advantage of a ſmall one, merely from being great.

But to come to particulars.

I propoſe that ſix ploughs be kept *conſtantly* at work: four ox ploughs and two horſe ones, or four horſes and eight oxen. One pair of harrows muſt be ſuppoſed always to attend theſe ploughs, or three horſes. Sometimes, upon extraordinary occaſions, one of the ploughs may ſtop for the working another pair of harrows; but thoſe will be only in a haſty time, when the corn is laid in *above ground*, inſtead of *under furrow*.

One horſe muſt alſo be aſſigned for rolling. Two for plowing between the rows of plants.

Four others ſhould be allotted for bringing manure from the neareſt city or town.

There are ſo many ſituations, wherein this is practicable, that it would be unpardonable to omit the ſuppoſition. But this team muſt be employed

ployed (except when the horſes aſſigned to the buſineſs of tillage are idle through bad weather) in carrying out the corn and other products of the farm.

Four oxen muſt be allotted for ſundry articles of carting; either in carts or a waggon: ſuch as wood---food for cattle in winter---ſtubble---ſtraw ---&c. &c. &c.

Two oxen ſhould conſtantly be kept at cart the whole year round, with two ſmall three-wheeled carts, in * carrying dung, clay, compoſts, &c. &c. &c. And two horſes I allow for extras.

By means of ſuch a diſpoſition of the teams, none of the work will ſtand ſtill, that the reſt may be better executed. In common farms, all

* This allotment would be much too ſmall, were it not that the horſes, &c. employed in tillage, and the extra ones, are all to be ſet to this work, at all leiſure times, which may undoubtedly be reckoned to equal the extra horſes being always at it. Horſes, becauſe called extra, are not therefore to ſtand ſtill. This ſuppoſition is very moderate.

common

common work is at a ſtand, when a little that is extraordinary is to be done. To carry out corn, ſtops the ploughs perhaps at a critical ſeaſon: the fallows are frequently ſeen over-run with weeds, becauſe it is ſeed time: in a word, ſome buſineſs is ever neglected, that the reſt may be decently performed.

But with ſuch a diſpoſition of draught cattle, as I have ſketched, all kinds of work will go on briſkly and regularly; the interruptions of hay and harveſt will be nothing for the two extra horſes; and another allowed for rolling, and two for horſe hoeing, with ſome ſpare time from the harrowing team, which it muſt have, will anſwer all carting of that ſort, and much other.

I am the more particular in this part of my ſcheme, as the inconveniences of the common oppoſite conduct are ſurprizingly great and obvious. One can ſcarcely walk over a farm,

farm, without remarking the neglect of ſome work or other of importance, ariſing from the want of a proper number of draught cattle: by the end of harveſt, the fallows are, many of them, either over-run with weeds, or at leaſt very deficient in pulverization: the farmers team has been employed in getting in his corn; for that buſineſs which is ſooneſt to ſupply his purſe, will be ſure to be done, at the expence of all other work. In ſeed time, favourable ſeaſons are either loſt, or but partially and ſlowly uſed, for want of ploughs and harrows: perhaps the farmer has nearly or juſt ploughs ſufficient, but can ill ſpare any horſes for harrowing. In ſuch a caſe, the latter work will be wretchedly neglected: ſeed will be ſown under furrow that ought to be harrowed in; and many fields only half harrowed; the conſequence of which, in numerous inſtances, is very fatal. In the article of manuring, this

this is yet more obſervable; for, inſtead of carting the farm-yard dung on to a compoſt hill, to mix with marle, earth, or clay; or carting the latter into the yard, and foddering upon it; the dung is often carried directly on to the land, although the ſoil be the leaſt proper for ſuch treatment; and this only to ſave a carting, while the horſes or oxen are employed in tillage.

And however numerous the fences may be, that the farmer has found neceſſary to make, and conſequently how great ſo ever the quantity of ditch earth may be, that lies ready for carting on to the land, yet none or little of it is moved, for want of draught cattle.

Nor are common farmers more conſiderate with regard to taking advantage of the neighbourhood of any great city or town in the purchaſe of manures ſo raiſed: when corn or hay is carried out, they may perhaps load

load back with dung, or aſhes, &c. but as to keeping a team merely for road buſineſs, ſcarce one of them had ever ſuch an idea.

It would be endleſs to multiply ſuch inſtances, as far as could with eaſe be done; but theſe are ſufficient to ſhew the neceſſity of providing teams for all ſorts of work.

We muſt, in the next place, proceed to ſet all theſe cattle to work, and ſee what quantity they will be able to perform.

The ſix ploughs, at the rate of each doing an acre a day for 300 days, will amount to 1800 acres plowed once.

But leſt objections ſhould be made againſt the allowance of only 13 days idleneſs, beſides Sundays, I ſhall ſuppoſe the ploughs to move 270 days in the year; the plowing teams to be employed (in caſe of froſt, or exceſſive wet weather, &c.) thirty days on other work; and to be abſolutely idle thirteen days. I had ſix horſes at work through

the years 1766 and 1767, both remarkable wet, and they did not ſtand ſtill ten days in the two years. Whatever be the weather, a farmer ſhould always have work of ſome kind or other ready for his plowing teams, when thrown out of their own: thirteen days of abſolute idleneſs are therefore a large allowance. Their working 270 days amounts to 1620 acres. Let us next examine what ſized and proportioned farm this plowing forms when divided.

160 acres plowed ſix times	960
160 ditto three times -	480
160 ditto once - -	160

This diviſion gives us two kinds of farms, as follows:

160 acres plowed ſix times for turneps, &c.
160 ditto three times for ſpring corn.
160 ditto once for wheat.

480

480

480 acres in tillage, and
160 of clover, one year old.
160 ditto, two years old.

800 of arable land.

Or there may be only one clover crop, in which caſe, the arable land will amount to 640 acres.

The farm to be managed by a team, that plows about 1600 acres annually, might be ſketched in a great variety of other ways; and it will aid the general deſign of theſe eſſays to ſtate a few of them.

100 acres ſix times for turneps		600
100 ditto three for ſpring corn		300
100 ditto once for wheat -		100
100 clover, one year.		
100 ditto, two years.		
50 ditto three times for potatoes - -		150
550		1150
		550

550	-	-	-	-	1150
50 acres ſix times for cabbages					300
50 ditto wheat twice				-	100
50 ditto ſpring corn once				-	50
700					1600

100 of lucerne, ſainfoine, and burnet.

800 total.

100 acres of wheat once				-	100
100 of barley thrice				-	300
100 of oats twice				-	200
100 of turneps five times				-	500
100 of cabbages five times					500
100 clover, one year.					
100 ditto, two years.					
700					1600

But for the ſake of the variety which there ought to be in a farm of this kind, that is ſketched for the ſake of the concluſions to be drawn from it, I ſhall adopt the following, which

which is rather an improvement upon the ſecond.

100 acres wheat once plowed	100
50 ditto twice -	100
100 ditto of ſpring corn thrice	300
50 ditto peaſe twice -	100
100 ditto of turneps five times	500
50 ditto of cabbages five times	250
50 ditto of potatoes three times	150
50 ditto of carrots twice -	100
	1600

50 ditto lucerne.
50 ditto ſainfoin.
20 ditto burnet.
100 clover, one year.
100 ditto, two years.

870 total.

I muſt upon this arrangement remark, that the common crops are infinitely beyond the uncommon ones; ſo that were the ſcheme in execution, the cultivator would not

have reaſon to dread the trial of vegetables, not every where uſed.

But to ſtate ſchemes of conducting farms in this enlightened age, with no eye to modern improvements, would be the height of ridicule. Sainfoin, cabbages, potatoes, carrots, are not common crops in every part of England, like wheat and barley; but every one of them are common in one part or other of the kingdom: if nothing was to be ſuppoſed on paper, but what common farmers every where cultivated, turneps and clover would be rejected. I do not imagine above half, or, at moſt, two thirds of the nation cultivate clover, and yet to interdict it, would be uſing much the ſame language, as to tell a man that he might farm how he pleaſed, but ſhould not uſe a plough. It is a ſurprizing number of years that are neceſſary, firmly to introduce the culture of a new plant. What an amazing inſtance is that of

clover?

clover? And if gentlemen of the preſent age had not aſſumed a ſpirit in agriculture vaſtly ſuperior to former times, I much queſtion whether that excellent vegetable would make its way fairly through the iſland in a thouſand years.

Cabbages and lucerne are at preſent much more confined than ſainfoin; they have not been introduced ſo long by, perhaps, two centuries: but no vegetable can have greater merit than both. Many of the nobility and gentry, in the north of England, have cultivated cabbages with amazing ſucceſs theſe dozen years. A vegetable which ſupplies the place of turneps, and even exceeds that root upon heavy clay ſoils; where turneps cannot be cultivated, it muſt make its way; and, in this age, faſt too.

The benefit of lucerne has been tried alſo, with the greateſt ſucceſs, upon various ſoils, in moſt parts of the

kingdom: this plant will likewiſe become common in time. Burnet I introduce only for a peculiar uſe; viz. the feeding ſheep late in the ſpring: I do not apprehend, from the experience I have had of it, that it is for other uſes comparable to clover, ſainfoin, or lucerne.

Now to ſketch improvements in huſbandry; when theſe vegetables are ſo well known, and to take little or no notice of them, would be voluntarily ſhutting one's eyes to daylight, and then complaining of darkneſs.

It is the buſineſs of the nobility and gentry who practiſe agriculture, and of authors who practiſe and write on it, to help forward the age; to try experiments on newly introduced vegetables, and if they are found good, to ſpread the knowledge of them as much as poſſible; to endeavour to quicken the motions of the vaſt but unwieldly body, the common farmers.

mers. But to omit this either in practice or in writing, is to reduce themſelves to the level of thoſe whom they ought to inſtruct; and to ſubmit to that ignorance and backwardneſs, which left to themſelves, cloud any country, in an enlightened age, with the darkneſs of many preceding centuries. Common farmers love to grope in the dark: it is the buſineſs of ſuperior minds, in every branch of philoſophy, to ſtart beyond the age, and ſhine forth to diſſipate the night that involves them.

But to return.

The arrangement of crops, in the preceding ſketch, is ſo diſpoſed, that the farm muſt always be clean and in good heart; and this independently of manuring.

In 750 acres in tillage, only 300 are corn; the reſt are ameliorating crops, that clean and enrich the ſoil, ſuch as clover, turneps, cabbages, &c. &c. This is a moſt important point;

which ſhould never be overlooked, or in any wiſe neglected; a truly good farmer ought never to ſow corn upon an uncertainty: his land ſhould be ſo thoroughly clean, and in ſuch great heart, as to yield an undoubted certainty of a crop. In anſwer to ſuch an aſſertion, I am ſenſible many will at once talk of ſeaſons, but from much obſervation, and ſome experience, I have great reaſon to believe, that bad ſeaſons fall infinitely the heavieſt upon bad farmers: nor ſhould it be forgot, that unfavourable times are generally ſuch to corn; not to graſſes, roots, &c. &c. Wheat is certainly ſubject to ſome diſtempers that come from ſeaſon; but ſow barley or oats, turneps or clover; plant cabbages, potatoes, &c. and obſerve fields of lucerne or ſainfoin: let any or all of theſe be in the ſoils that agree with them, and perfectly well managed, and then take an account of ſeaſons; I am confident there will never

never be a bad crop. Too much attention ſhould not be given to complaints of the ſeaſons, reſpecting any lands, until it is thoroughly *known* whether the whole proceſs of the management was ſuch as the vegetable required. Bad huſbandry is too often laid to the account of ſeaſons.

The grand article of all huſbandry, is the keeping great ſtocks of cattle; for without much cattle, there cannot be much corn. Even thoſe farmers who would make corn their principal produce, ſhould, in one ſenſe, let it be only a ſecondary aim; ſince a great plenty of cattle ſhould be conſidered as the means to attain that end.—In the farm I have ſketched, it is evident enough, only from a partial view (the natural graſs not being in the account) that the number of cattle muſt be very conſiderable.

It is further apparent, from the general extent of the buſineſs here ſup-

poſed, that a baily may be profitably employed; and that a great number of hands may be kept conſtantly at work the year round, upon diſtinct buſineſs; which is a matter of vaſt importance. In a ſmall farm, one work (as in the caſe of draught cattle) ſtops, that another may be done. Turneps want hoeing, but at the ſame time the harveſt is going forwards, and all hands wanted for that; the former will certainly be neglected. Perhaps a large field wants to be clayed, chalked, or marled; during hay time and harveſt, ſuch work will be ſure to ſtand ſtill, whatever loſs may be ſuſtained from it. In a word, ſome work or other, in a ſmall buſineſs, is ſure to be neglected, that other kinds may be done. The farm which I have ſketched, is large enough to prevent any neglect of that ſort.—Let us, in the next place, proceed to draw forth the general œconomy of this farm, from the particulars already given.

The

The ſtock of draught cattle amounts to ſixteen horſes and fourteen oxen: upon which I ſhould in general add one ſlight remark. I have divided them into teams, for diſtinct buſineſs, which is neceſſary: but at the ſame time mutual exchanges muſt ſometimes be ſuppoſed; three horſes are marked for harrowing, one for rolling, and two for extras: it does not therefore follow, that theſe are never to be employed upon other work. Perhaps 100 acres of clover are to be ſown in a critical ſeaſon: in ſuch a caſe, all theſe horſes, and all the plowing ones, may be ſet to harrowing; but the others will return the work in plowing at a like pinch: the meaning of diſtinct teams is, that in general all this buſineſs is to be diſtinctly performed, but particular exceptions are not objections to the general arrangement.

The thirty head of draught cattle may be allowed (as they work in general

neral much harder in a large than in a ſmall farm) 24 acres of clover, and 24 of graſs, for their ſummer's food. And perhaps 30 acres (60 tons) of ſainfoin hay, and five of graſs, will be requiſite for the winter.—The quantity of food ſpecified above, that remains, is therefore as follows;

100 acres of turneps.
50 ditto of cabbages.
50 ditto potatoes.
50 ditto peaſe.
50 ditto of carrots.
50 ditto of lucerne.
50 ditto of ſainfoin.
30 ditto for oxen.
—— 20 remains.
20 ditto of burnet.
176 ditto of clover.

The query therefore is, what cattle ſhould be provided for this food?

I have ſeveral reaſons for preferring a variety of cattle, here, to all of

of one ſort: a perſon who has ſuch an extent of buſineſs, would chuſe to take more chances than one or two for ſucceſs; beſides the pleaſure of gaining experience in many branches of huſbandry at once. And as the quantity and variety of the food here ſtated are conſiderable, they will very well admit of ſeveral ſorts of cattle.

40 acres of turneps, and 20 of burnet, are ſufficient, I reckon, to winter 500 ſheep.

30 acres of carrots, and 20 of ſainfoin hay, will winter fat (in warm ſheds) 100 ſteers, of 50 ſtone each, exceedingly well.

30 acres of cabbages, and 20 of natural graſs hay, will winter 150 cows.

20 acres of cabbages, and 10 of clover hay, will winter fatten 80 ſteers or heifers, of 40 ſtone; and that plentifully.

80 acres of clover hay (which I calculate at 240 tons) and 60 of turneps, will ſerve extremely well to

winter *keep* 240 oxen of ſixty or 70 ſtone.

50 acres of peaſe, 50 of potatoes, and 10 of carrots, will, at a moderate computation, fatten 400 large hogs.

10 acres of carrots will, with the aſſiſtance of a dairy of 50 cows, and the offal corn of the farm yard, winter keep 20 ſows, and wean all their pigs throughout the year, which I calculate in number at 200.

It is to be obſerved, that I take no notice of the ſtraw; although that of the ſpring corn will, in the very littering the yard, afford no trifle of food to the lean cattle. But ſuch a farm as this, with ſuch a vaſt ſtock of cattle, requires, upon the whole, more litter than is poſſible to be raiſed upon it with good huſbandry: I know, indeed, of no method of improving land more effectual than keeping great ſtocks of cattle, and foddering them with purchaſed ſtraw or ſtubble;

ble: I treat in this eſſay particularly of proportions, and I muſt be allowed to add, that I have adhered to them as exactly as poſſibly: for the ſtraw and ſtubble of all the corn of this farm are ſufficient for littering the cattle I have ſtated; but at the ſame time, they would make a greater quantity into dung; and conſequently ought to have them bought for the purpoſe.

We muſt in the next place examine the ſummer food requiſite for all this cattle.

The draught cattle require 29 acres of graſs.

240 oxen are winter kept, that are to be ſummer fatted; for theſe we muſt allow, as they are large beaſts, 480 acres. This is a large allowance, but a farmer had better provide too much food than too little.

The 500 ſheep, before mentioned, muſt have aſſigned them about 66

acres

acres of clover, for their ſummer food: this will be a good allowance, conſidering the richneſs of the manuring, which all the crops of this farm have. But to remove any objections, however trifling, it ſhould be remembered, that the ſheep may follow (every now and then) the 240 oxen; a conſideration which would have juſtified the aſſigning a much greater number.

The 150 cows I ſuppoſe to be ſummer kept on the 50 acres of lucerne. This may appear a large allowance to thoſe who are unacquainted with that vegetable; but I well know from experience, that lucerne, not comparatively excellent, will more than feed at the rate of three cows per acre.

Twenty acres of clover remain to be accounted for; theſe I aſſign to the ſummer feeding of the young hogs that have been weaned, and kept a proper time on the dairy and the carrots: as they

they will be very numerous, and require a proviſion of this ſort, no food can agree better with them than clover; and in all farms, where many are kept, it is highly requiſite that a field of good clover be always preſerved for them; or if not kept abſolutely for them alone, at leaſt the quantity allowed in the *general* diſtribution of the clover crop.

The recapitulation of the ſtock and land is therefore as follows:

500 ſheep ſummer fed on 66 acres of clover; kept in winter on 40 acres of turneps, and 20 of burnet.

240 oxen fatted in ſummer on 480 acres of graſs land; and kept in winter on 80 acres of clover hay, and 60 of turneps.

150 cows ſummer fed on 50 acres of lucerne; and kept in winter on 30 acres of cab-

cabbages, and 20 of natural graſs hay.

100 ſteers winter fatted on 30 acres of carrots, and 20 of ſainfoin hay.

80 ſteers winter fatted on 20 acres of cabbages, and 10 of clover hay.

400 ſwine fatted on 50 acres of peaſe, 50 of potatoes, and 10 of carrots.

20 ſows, and their pigs, kept the year round (with the aſſiſtance of the dairy and farm yard corn) on 10 acres of carrots, and 20 of clover.

30 draught cattle kept on 24 acres of clover, 29 of natural graſs, and 30 of ſainfoin, (beſides oats, &c.)

The land, therefore, applied to the feeding and fattening of cattle is,

529	acres of natural graſs.
200	ditto of clover.
50	ditto of lucerne.
50	ditto of ſainfoin.
20	ditto of burnet.
50	ditto of cabbages.
100	ditto of turneps.
50	ditto of carrots.
50	ditto of potatoes.
50	ditto of peaſe.
1149	
250	ditto of wheat, barley, and oats.
1399	total.

The vaſt diſproportion between theſe two numbers, ſhews how rich and clean the land muſt neceſſarily be kept. We may venture to lay it down as a maxim, that if great ſtocks of cattle are kept, much money will be made. Here are only 250 acres of wheat, barley, and oats; but I may venture to aſſert theſe 250 to

be better than many crops of 1000 acres, where the proportion between the exhauſting and ameliorating ones is not well attended to.

The cattle kept in winter are thoſe to which a farmer ſhould look for raiſing manure; theſe are,

240	oxen.
150	cows.
100	ſteers.
80	ditto.
30	draught cattle.
600	

Theſe 600 head of cattle ought, beyond all doubt, to raiſe, in the courſe of the winter, twelve loads per head of dung, ſuch as is carried at firſt out of the yard, before it is rotten, or mixed with earth, &c. that is - - - 7200

400 Swine fatted, at two load each - - - 800

Carried over 8000

	Brought over	8000
20	Sows, at five loads -	100
		8100

Whatever farmer keeps ſuch a ſtock of cattle, ought to raiſe this quantity of dung annually; but he will not be able to do it, unleſs he purchaſes ſtraw, or ſtubble, regularly, by contract with his neighbours, that he may have a certain number of loads brought in every week throughout the whole winter. It is impoſſible, conſiſtently with good huſbandry, to allow, in ſuch a ſketch as this, corn land proportioned to the want of ſtraw; becauſe, as that is increaſed, ſo muſt the number of cattle, and, conſequently, the diſproportion will be the ſame, *ad infinitum*.

I allowed one team for carting the year round, and extras of other cattle, to the amount of another: a team, and two ſmall three-wheeled carts,

will carry at an average thirty loads a day, or rather half loads, as thoſe carts do not hold above half a load; this is when the drive is not long; in other caſes, larger carts are to be uſed, and the teams thrown together. In the whole, it is ſixty ſmall loads a day, or thirty common ones; that is, 9000 per annum, reckoning them to work 300 days in the year; which total leaves them time, after carrying away all the farm-yard dung, to carry 900 loads more of marle, chalk, clay, ditch earth, &c. annually.

One circumſtance, however, ſhould here be noticed: in general it is highly adviſeable to cart a large quantity of marle, chalk, clay, or earth, into the farm yard, to fodder the cattle upon; after winter, to mix that and the dung well together, and cart the compoſt on to the land; the reaſon I have varied from that maxim in the inſtance before me, is the nature of the vegetables cultiva-

ted

ted on this farm, that moſt require dunging; viz. cabbages and potatoes firſt; and ſecondly, turneps and carrots; and laſtly, clover. I have already ſtated an annual manuring of 9000 loads; to this we muſt add 300 waggon loads of town manure; (if the farm is within five or ſix miles, many more; as in ſummer the waggon may go twice a day;) or above 900 cart ones: the total may be called 10000 loads annually. This quantity I ſhould divide as follows:

100 acres of cabbages, and potatoes, at 50 loads an acre - -		5000
120 ditto of turneps and carrots, at 30 loads an acre - -		3600
100 acres of clover, (the half) at 14 load an acre		1400
	Total	10000

Now this manuring is, upon the whole, ſo fully ſufficient to keep all

the farm in excellent heart, that I thought the doubling the quantity with clay, &c. needleſs: in farms where a much greater proportion of corn is ſown, that conduct is *abſolutely* neceſſary, becauſe raw dung ſhould never be laid on corn land; but theſe vegetables, eſpecially cabbages and potatoes, delight in it. However, the addition of another team for carting, which is but a trifle in ſuch a farm as this, will at once remove the objection, if it is thought a good one, by enabling the farmer to carry 9000 loads of earth, &c. annually to the farm yard.

Having thus ſtated the *land*, *cattle*, and *manuring*, we muſt, in the next place, enquire into the labour that will be neceſſary: an article that requires the proper proportioning, if poſſible, more than the teams. It is of the higheſt conſequence, that there are men for every work, at all ſeaſons of the year; to have the teams idle

for want of men, is the way to ruin any farmer.

Six ploughs, two horſe, and four ox ones, require regularly ſix men, and four boys to drive the oxen. Theſe ſhould all be ſervants in the houſe.

One harrowing team requires one man; a ſervant alſo.—It is common for farmers to ſet boys to harrowing: but if their harrows are ſuch as they ought to be, the work will be more than they are able to perform, beſides the danger of wounding the horſes with the teeth; of which the perſon ſhould be more careful than a boy can be ſuppoſed to be.

One boy will be wanted always in readineſs for rolling; a ſervant likewiſe.

Two men (ſervants) for the horſe hoeing teams; ſometimes they will work with ſingle horſes; ſometimes with two; as they will have their

ſhare of the extra ones, and the rolling horſe.

One man and a ſtout lad ſhould be allotted to the waggon team, for bringing manure, &c. theſe ſhould alſo be ſervants; and two men to the miſcellaneous ox team.

One man muſt always be ready to drive the ox carting team; and when it is doubled, another, or a ſtout lad, will be wanting. The ſmall three-wheeled tumbrils are ſo extremely handy, that a man and a lad will manage two ſets very well. Theſe alſo muſt be ſervants.

One man (ſervant) muſt be aſſigned to the extra horſes to work with them, at whatever they are ſet about.

The 500 ſheep will require one man, who ſhould be called the ſhepherd: but as the ſheep are all kept in incloſures, he will have much leiſure for other work; he may particularly aſſiſt with the cows.

The

The 240 oxen, kept the year round, muſt have one ſervant allotted to ſee to them; in winter he will want aſſiſtance, and there will be enough to ſpare in other hands, without a direct increaſe.

The 180 ſteers, that are winter fatted, muſt be attended by five men, and as many boys. Theſe may be labourers or ſervants, but the latter are preferable for all buſineſs that concerns cattle.---It ſhould be remarked, that I ſuppoſe their conveniences complete; otherwiſe, three times as many hands muſt be kept. Nor ſhould it be taken for granted, that becauſe a given number of men and boys can manage a certain number of any ſort of cattle, that therefore boys alone can do for a much fewer, however proportioned the quantity may be; boys are never to be truſted at any work whatever, but in company with men, who will make them work for their own ſakes.

400 fatting ſwine, and 20 ſows, with the pigs and young hogs, may be eaſily managed, through the winter, by three men and two boys: but this depends totally upon the hog-houſes, ſties, &c. being excellently well contrived for convenience. I have ſeen ſuch as would require twenty men to manage this number of ſwine. In ſummer, one man would be ſufficient.

The 150 cows are divided, 50 for the dairy, and 100 for ſuckling. Theſe will require three men and three boys. And the dairy, one head dairy woman that can be truſted, and two others, with aſſiſtance of the boys, &c. at milking.

Thus far the ſervants, labourers, and boys, are,

S.	*L.*	*B.*	
6	0	4	For the ploughs.
1	0	0	Harrowing team.
7	0	4	Carried over.

S.	*L.*	*B.*	
7	0	4	Brought over.
0	0	1	Rolling.
2	0	0	Horſe hoeing.
1	0	1	Road team.
2	0	0	Ox team for ſundry carting.
1	0	0	ditto carting dung, &c.
1	0	0	The extra team.
0	1	0	The ſhepherd.
1	0	0	The 240 oxen.
0	5	5	The 180 ſteers.
1	2	2	The ſwine.
0	3	3	The cows.
16	11	16	

In ſome ſituations, it would be adviſeable to have more of them labourers; but in others, it is the moſt beneficial practice, to employ nothing but ſervants: variations of this kind muſt exiſt in every county of the kingdom.

A certain portion of hands are aſſigned to each buſineſs; but at times ſome will want more; while the cows are milking and ſuckling, the cowherd muſt take ſome of the tillage boys, for as the care of the draught cattle is not left to them, they ſhould be employed in the morning, while the horſes and oxen have their breakfaſt and are harneſſed, about other cattle; and again, during all the afternoons, the ſame.

In the teams, four horſes are to be allotted to a man, (without any aſſiſtance) for feeding, cleaning, &c. &c. &c. The ſixteen horſes muſt therefore be allowed four men, and the fourteen oxen will be very eaſily managed by one man and a ſtout lad. But the man who drives the road team muſt be allowed his boy, in conſideration of his waggon being unloaded every day. All the teams therefore require five men and two boys. But in the above table there

are

are fourteen men and ſix boys employed by them; deducting therefore the neceſſary number, there remains nine men and four boys; and theſe are at hand, and at leiſure for any kind of work, both of mornings and afternoons, either in aſſiſting the men who have the care of the other cattle, or in any other work that is wanting.

It remains to proportion the reſt of the labourers that muſt be employed upon the crops above mentioned. All the plowing, harrowing, horſe-hoeing, carting of every kind, (the drivers) and all the cattle are provided for; the beſt way of examining the reſt, will be to calculate the total ſum it will amount to, and then divide the ſum into labourers annual earnings; and this I ſhall calculate in as few words as poſſible.

	l.	*s.*	*d.*
Sowing 150 acres of wheat, 150 of ſpring corn, 100 of turneps, and 100 of clover, at 3*d.* - -	6	5	0
Water furrowing 300 acres, at 6*d.* - -	7	10	0
Reaping 150 acres of wheat, at 5*s.* -	37	10	0
Mowing 150 acres of ſpring corn, at 1*s.* 6*d.*	11	5	0
Thraſhing 300 acres of corn, five quarters per acre, 1500 quarters, at 1*s.* 6*d.* on an average	112	10	0
Hand-hoeing 100 acres of turneps twice, at 7*s.* -	35	0	0
Drawing and throwing into carts 60 acres, at 3*s.* - -	9	0	0
Planting 50 acres of cabbages, at 5*s.* -	12	10	0
Hand-hoeing ditto twice, at 6*s.* - -	15	0	0
Carried over	246	10	0

	l.	*s.*	*d.*
Brought over	246	10	0
Cutting ditto, and throwing them into carts, at 2*s.* 6*d.* - -	6	5	0
Dibbling fifty acres of potatoes, at 5*s.* (each man to be allowed a boy, who are allowed to ſlice them) - - -	12	10	0
Hand-hoeing ditto three times, at 12*s.* -	30	0	0
N. B. They are plowed up; the potatoes picked up by boys.			
Sowing fifty acres of carrots - -	2	10	0
Hand-hoeing them at 2*l.*	100	0	0
N. B. In a farm that is not kept ſo clean from weeds as this, it will coſt 3*l.* but that circumſtance ſhould not be forgot.			
Carried over	379	15	0

	l.	*s.*	*d.*
Brought over	397	15	0
Digging them up, and throwing them into carts, at 8 *s.* -	20	0	0
Hand-hoeing fifty acres of lucerne three times, at 10 *s.* - -	25	0	0
Mowing ditto five times, raking together, and loading into waggons, at 12 *s.* - -	30	0	0
Mowing, making, and cocking fifty acres of ſainfoin, at 4 *s.* -	10	0	0
Ditto, ninety ditto of clover hay twice, at 4 *s.*	36	0	0
Ditto, twenty-five ditto of natural graſs, at 5 *s.*	6	5	0
N. B. The moſt eligible method in ſo large a farm of having a good ſtock of hay beforehand, is, to go through the			
Carried over	525	0	0

	l.	*s.*	*d.*
Brought over	525	0	0
first year with a moderate ſtock of cattle, by which means ſeveral large ſtacks will remain always in hand.			
Filling and ſpreading 8100 loads of dung, forty buſhels each, at 2*s.* 6*d.* a ſcore - -	50	12	0
N. B. The price of ſmall carts proportioned.			
Filling and ſpreading 900 loads of ditch earth, &c. thirty buſhels each, at $2\frac{1}{2}d.$ - -	9	7	6
Ditching and hedging 500 perch, at 1*s.* -	25	0	0
Total	609	19	6

Suppoſe they earn (as it is moſtly piece-work) 1 *s.* 3 *d.* a day the year round, that is, 19 *l.* 11 *s.* 3 *d.* per

annum; but we will call it 20*l.* the above total is, at that rate, equal to thirty labourers; which, all things conſidered, is the number I am inclined to aſſign, in addition to thoſe before minuted.

I allow nothing for extraordinaries, nor take any notice of ſmall articles not inſerted, becauſe, in the firſt account of labour, ſeven men (beſides boys) are minuted for winter employment alone; conſequently, all their time in ſummer is to be diſpoſed of, and this addition will be fully ſufficient to anſwer all unſpecified articles, and to allow for extra's.

I ſhould alſo remark, that upon caſting the above labour up diſtinctly in ſummer and winter work, I find the latter amounts to 271*l.* 9*s.* 6*d.* which (conſidering the rate of earnings at that time of the year) is more than half; conſequently the farmer is ſecure of men at all times of the year, a point of very great importance.

ance. Whoever finds winter work regularly, is ſure of his men in ſummer; for it is highly the intereſt of the labourer to work in ſummer (if demanded) where, in conſequence of ſuch work, he is ſure of winter employment. Thoſe who are known to hire men in ſummer, and pay them off upon winter coming, muſt always expect to pay many degrees dearer, upon the long-run, than others who find regular employment the year through.

The general ſtate of *land*, *cattle*, and *labour*, will appear in the following ſketch.

250 acres of wheat, barley and oats.
50 —— of peaſe.
250 —— of turneps, cabbages, carrots, and potatoes.
320 —— of clover, lucerne, ſainfoin, and burnet.
529 —— of graſs land.

1399 Total acres.

500 ſheep.
420 beaſts, fatted.
150 cows.
400 hogs, fatted.
20 ſows.
30 draught cattle.

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1 bailey.
16 men ſervants.
41 labourers.
16 boys.
3 dairy maids.

Upon this general ſcheme, I ſhould obſerve that every part of ſuch a farm is of conſequence enough to merit a diſtinct attention. In the tillage and manuring, ſix ploughs may be at work, ſeveral pairs of harrows, a roller, a waggon upon the road bringing manures, a team carting manure at home; another, employed in any ſundry kind of waggon or cart work that is wanted. Two ploughs, horſe-hoeing crops in rows. And while all

all theſe are at work, above fifty other hands employed beſides on various buſineſs: thus all may work in their diſtinct apartments, and yet every buſineſs go on briſkly and well.

On the contrary, in caſe of very critical ſeaſons, fifteen ploughs may at once be ſet to work, and plow for inſtance the 150 acres of ſpring corn land in ten days time; and in three days more ſow and harrow the whole (clover with it) three times over. Thus the great pinch of a ſowing is over in a fortnight, which, with common management, and common farms, laſts ſix or eight weeks. The difference of this is prodigious. We ſometimes ſee a fortnight of fine dry weather the end of February, or the beginning of March; and afterwards ſo wet, that the ſpring ſowing is not over in general till the firſt or ſecond week in May.—To catch the dry and early time, is, in ſuch a caſe, to be eſtimated at from one to two quarters

per acre; and oftentimes at much more.

On the other hand, thirty draught cattle are at once to be ſet to carry the dung out of the farm, and above 1300 loads carried in three days.

The ſame vigorous diſpatch of buſineſs holds throughout all the work of ſuch a farm. And in every article concerning labour it is the ſame. All the teams are conſtantly employed; and yet no work, that wants men alone, ſtops.

In reſpect of cattle, each ſort are numerous enough to be well attended; the contrary of which is remarkably the caſe in moſt ſmall farms. When there are only a few ſheep, a few cows, a few hogs, and an ox or two, the farmer cannot dream of ſetting men to attend each: we even never ſee *one* man ſtrictly confined to take good care of all. One or two boys have an hundred things to do, without being regularly overlooked in one.

Labour-

Labourers or ſervants, by way of broken jobs, and at odd times, have the charge of all the cattle of a farm; which are all ſure to ſuffer, if any buſineſs of tillage, threſhing corn in a hurry, carrying it out, &c. &c. intervenes. The profit which ariſes merely from a different conduct, ought in reaſon to be eſtimated very high.

The ſheep have in this farm a ſhepherd to attend them at all ſeaſons, and at all hours. The beaſts that are fatted throughout the year, have men for the mere ſervice of attending them. Thoſe which are fatted in winter alone, do not ſuffer from the others being taken ſuch good care of, having men, &c. diſtinctly appointed to them. Nor does this arrangement in the leaſt injure the cows, who are conſidered in the ſame manner, and have ſeparate men. At the ſame time that theſe cattle are thus attended, other ſervants have the ſwine conſtantly in charge. Thoſe which are

fatting, are regularly fed and littered: nor are the ſows, pigs, and lean hogs, therefore neglected; hands being on their account likewiſe allowed.

Such a number of objects, and ſo many men employed, render it very well worth the expence to pay a bailey; by which means an overſeeing eye is conſtantly examining how every thing goes on; and a farmer can depend, whether abſent or preſent, on every perſon's doing his duty.

The advantages reſulting from ſuch an arrangement are prodigious; equally ſo in *tillage*, *labour*, and *cattle*; and, as the reſult of all, in the agregate of PROFIT.

This is what I mean by the *proportions* of a farm: which evidently require a certain extent of buſineſs to be properly attended to: it is very difficult to aſſert, which ſized farm is, minutely ſpeaking, the moſt profitable: but we may, from the preceding ſketch, venture to pronounce that

that theſe proportions are requiſite for conſiderable profit in any farm. They may be reduced to a leſs ſcale than I have inſtanced, and they may be extended to a much larger one, but there is a *ne plus ultra* on both ſides, beyond, or ſhort of which, the profit will not *proportionably* hold.

Reſpecting cattle in the reduction of this ſcale, I think every ſort ought to have *one* man *abſolutely* appointed to them: as many ſheep muſt, therefore, be kept as will pay a ſhepherd: as many hogs as will make a hogherd anſwer: as many cows as will require a cowherd: and the fatting beaſts a reſpective attendant: dependance may be had on other men's odd time for *aſſiſtance* in all theſe, but in none of them *ſolely*. Nor is there much conduct in giving one man ſeveral ſorts of cattle to attend; for one perſon, in that manner, can do very little well, much leſs than commonly imagined: a quick change,

change, and that ſeveral times a day, from one employment to another, ſuits farming people leſs than any in the world; a plain regular buſineſs of the ſame kind, is the only way of being well ſerved by them. The misfortune of a ſmall farm, is the allowance of nothing regular.---Confuſion, and loſs of time, are the only ſure concomitants of ſuch.

ESSAY II.

Of the beſt method of conducting a farm that conſiſts all of arable land.

TO have introduced the few remarks I have to make on this head, under another, would have occaſioned a confuſion, which ought more to be avoided in works that treat of agriculture, than perhaps in any other.

Farms that conſiſt entirely of arable land, are conducted in ſome few parts of the kingdom in a very judicious manner; but ſuch conduct not being general, nor generally underſtood,

ſtood, a few words in explanation of it may not be uſeleſs.

Food for cattle is ſo abſolutely neceſſary in every farm, that no farmer is found without it: the great point in debate is, which is the beſt way of ſecuring it under difficult circumſtances?

There is no article, in the whole range of huſbandry, of more conſequence, than the proper diviſion of a farm into the two grand parts of graſs and arable: the common miſchief is having too little of the former: the manner in which moſt farmers (eſpecially little ones) remedy this evil, is what every perſon ſhould exert himſelf to oppoſe and change.

The obvious remedy is to lay down, in a maſterly manner, a ſufficient quantity of the arable land to graſs, which is, at once, removing the evil: but when we conſider any points in the buſineſs of common farmers, it is neceſſary to ſpan a greater

greater latitude, and aim at thoſe circumſtances (however contracted in themſelves) which operate the moſt powerfully among them.

Many farmers cannot afford to do what they know to be right; and others who can afford it, are ſo fearful of the expences, that they let ſlip the beſt opportunities. Many of them, that really want graſs land in a great degree, ſhew, in their conduct, that they are ſenſible of the evil, but either know not how, or will not remedy it: thus we ſee them depending upon clover for feeding their horſes (the only cattle they concern themſelves about), and yet reſt their dependance on *every* ſeaſon to gain a crop; and will not give that crop the chance of a fallow. Others lay a field or two down to graſs, but do it in ſuch a manner, that the conſtant loſs they ſuſtain, is a burthen upon them as long as they remain in their farms.

In

In the firſt caſe they take two, three, four, or, perhaps, more corn crops, and when they find the ſoil will yield no more, they throw in the clover ſeed and take the chance of a crop: if they are ſo lucky as to ſucceed in a certain degree (beyond which mediocrity no ſeaſon can carry them), they plow it up again the firſt year for harrowing in wheat on one earth; a compendious mode of huſbandry which well ſuits their pockets; and thus they every year run the chance of being defeated in their reſource.—In the other method of remedying the evil, viz. of laying down a field to graſs, they are ſure firſt to take as many crops of corn, as the land can poſſibly yield, even till the produce is little more than ſtraw: after this, many of them let it alone to graze of itſelf, never ſowing any graſs ſeeds, nor troubling themſelves further about it: others, whoſe induſtry may be ſomewhat

greater, will throw in ſome common clover and ray graſs, as they are cheap ſeeds, and leave it to gain a turf in that manner.

There is no occaſion to expatiate on ſuch methods, which carry in their face the ſtamp of their own abſurdity. So much was neceſſary to ſhew, that what I at preſent treat of, *is an evil*, and *requires a remedy*. The reader muſt judge how far the following propoſitions are likely to anſwer the purpoſe. One previous remark is, however, neceſſary; there *may* be reaſons, and not bad ones, for avoiding the obvious method of laying a part of the farm down to natural graſs in a ſufficient manner; we muſt therefore ſuppoſe, for the ſake of the argument, that ſuch reaſons are good.

The courſe of crops moſt to be recommended to a farm in this ſituation, provided the ſoil is light enough for turneps, is this:

1 Tur-

1 Turneps.
2 Barley.
3 Clover for two years.
4 Wheat.

A farm in this management is thrown into fifths; two of which are always in clover, half one year, and half two years old.

The advantages of this courſe are many, and muſt be obvious. A large portion is always graſs, which anſwers the grand aim of providing food for the neceſſary cattle. Before one year's clover is plowed up for wheat, the ſucceſs of the new crop is known; a point of vaſt importance with farmers, who either cannot, or will not keep their land in ſuch excellent heart, as always to be ſure of a crop; ſo that in caſe of ſuch an unfavourable ſeaſon, as to have their clover fail, there remains no ſuch danger of the cattle ſtarving, as the laſt crop; inſtead of being plowed up for wheat, may remain, to anſwer the demand

of

of the new year; and, at the ſame time, the uſual quantity of wheat be ſown; which could not be the caſe if only a fourth of the farm was in clover.

In the proviſion for ſuch cattle, as clover will keep, this method effectually anſwers the purpoſe of natural graſs; but clover will not do for all uſes: beaſts cannot be fatted upon it; nor muſt cows be fed on it, whoſe butter is made into pounds to be ſold *freſh*; but for a dairy that puts down the butter ſalt in firkings, or for ſuckling the cows, nothing does better. Sheep are kept upon it, and fatted, even to greater profit than on natural graſs. Hogs affect it uncommonly; and no food agrees better with horſes. At the ſame time that the vegetable anſwers the purpoſe of feeding cattle ſo well, it is remarkably profitable in another reſpect, that of preparing the land excellently for wheat, which is ſown

after it on a ſingle earth, and in that cheap method, yields crops equal to thoſe the beſt fallowed for.

There muſt, however, be many of my readers, who have remarked the culture of clover among common farmers, (and many of them ſuch as are generally eſteemed good ones) without ſeeing ſuch very beneficial effects attend it, as I have ventured to ſketch. But, without recurring to ſuch inſtances of execrable huſbandry as I ſet out with quoting, it muſt be obſerved that clover, like moſt other vegetables, requires good huſbandry, to yield good crops; and that not merely relative to the crop with which it is ſown, but all that compoſe the *courſe* in which it is introduced. In a word, it requires a general good management.

Suppoſe the turneps, which I ſtate as the firſt crop in the propoſed ſyſtem, are managed after the manner of many whole counties, that is not hoed

hoed at all, but left at their utmoſt thickneſs, and full of weeds, as ſuch crops moſtly are; this management does not affect only the turnep crop, but every one that follow: for the crop of turneps, which is the firſt in the courſe, if it is badly managed, will much prejudice even the wheat one, which is the laſt. They leave the land full of weeds for the barley; and as ſuch gentry are always on the increaſe, like other bad company, when once they have got a head, the barley that ſucceeds is ſure to be full of them: with that clover is ſown, and muſt infallibly be peſtered with them; ſince in all probability the land had as many ſeeds of weeds in it as of clover, conſequently much of the latter muſt be deſtroyed, and all impoveriſhed, for no ſoil can carry twenty crops at once. After the clover comes the wheat, which muſt infallibly ſuffer from the poverty of the clover crop. All who have the

leaſt experience of this huſbandry, muſt be ſenſible that the wheat is ever the beſt after the beſt crops of clover; for the roots of the graſs are the manure for the ſucceeding crop, and operate in looſening and mellowing the ſoil, as much, perhaps, as the utmoſt efforts of tillage can reach; but I never heard that the roots of weeds were attended with either of theſe effects: not to notice the vaſt difference between ſucceeding a vegetable that maintains a great many cattle, and others that yield food for none.—In this manner, every crop is ſucceſſively injured by the weeds, until the laſt is almoſt deſtroyed by them: and then the circle goes round again upon the ſame principles, in ſo much, that every courſe increaſes theſe grand enemies, until at laſt the ground, however good it may naturally be, becomes quite exhauſted, and will yield nothing but trumpery.——In this management, I think it is pretty clear,

clear, that the clover huſbandry may be woefully unſucceſsful, and yet in itſelf be no wiſe wanting in merit.

But ſuppoſing the turneps are well hoed, and managed in all reſpects upon the beſt principles, ſtill the goodneſs of the clover crop will depend upon the intermediate conduct. Many farmers, who cultivate their turneps in the manner they ought, think they have therein done ſo much for the land, that it will very well carry more ſucceſſive corn crops than I adviſe: inſtead of ſowing their clover with the barley, they take two following ones of barley, throwing in the clover with the laſt; or, perhaps, two crops of barley, and then one of oats, and the clover with that: all the conſequences of which conduct are as bad as can well be conceived. In the firſt place, the land is filled with weeds, which is the infallible event (in any management however otherwiſe good) of ſeveral

ſucceſſive crops of corn; the clover is neceſſarily much damaged; and the ſucceeding wheat very poor. Secondly, the farm is divided into a greater number of parts, more land ſown with corn, and leſs with food for cattle: all which conſiderations are of the utmoſt importance.

I muſt, laſtly, mention another mode of conducting ſuch farms as theſe; which is to ſow no more clover than juſt to maintain the horſes; to omit turneps altogether, and to gain from the land as many crops of corn as it will poſſibly yield, and then to give what ſuch farmers call, a fallow to it.

In other words, every means of exhauſting the ſoil are taken, but none of repleniſhing it; nothing but corn raiſed; and no cattle maintained, and, conſequently, no manure raiſed. This management is execrable, and yet ſurprizingly common among little farmers. I know not to

what

what to attribute it, but the want of money.

Turneps and clover are both crops that require much cattle to conſume them, and, conſequently, large ſums of money generally in hand: and this can never be found, while they overtrade themſelves to ſuch a degree, as almoſt univerſal at preſent; ſcarcely a man amongſt them, that ought to have more than half the land he poſſeſſes. This want of money is ſurprizingly evident among them, in the want of cattle: many of them have as much as their food will ſerve, but that is not the point; it is the providing a proper quantity of food; which proviſion may almoſt be ſaid to form the baſis of all good huſbandry.

In the courſe of crops, of which I am at preſent treating, viz. fifths, two of clover, and one of turneps, the ſum of money requiſite for cattle is no trifle. Suppoſe the farm ſo ſmall as 100 acres: 40 acres will be

clover, and twenty turneps. Suppoſe four horſes and ſixteen cows are kept as regular ſtock, theſe may be allowed 30 acres of clover for their ſummer food, and they will ſpare enough to run a few hogs or ſheep after them, the former beſt; ten acres mown twice for hay, will ſerve them in the winter (if the horſes are not hard worked) with the aſſiſtance of the ſtraw and five acres, ſuppoſe of turneps; there remains, conſequently, fifteen acres of turneps, and theſe will winter fatten twenty-five heifers or ſteers, of five pounds value lean.

Here, therefore, beſides horſes and ſwine, is a ſtock of cattle, to the amount of near 200 *l.* which is full four, or perhaps five, times as much as ever found on ſuch a farm. But how comes this? ſay ſome. The anſwer is extremely eaſy; a man who poſſeſſes the ſum requiſite for *thus* managing 100 acres of land, will ſcorn

ſuch a little farm, and hire twice, perhaps thrice, as many acres: and this falſe ambition is ſo univerſal among them, that ſcarce an inſtance (at leaſt among ſmall and middling-ſized farms) to the contrary is to be met with.

The gaining of good crops of corn muſt for ever depend on poſſeſſing plenty of manure, and the courſe of crops, which I here ſketch, if well ſtocked with cattle, will raiſe conſiderable quantities; and as the ameliorating crops, viz. clover and turneps, amount to ſixty acres, and the exhauſting ones to only forty, that favourable proportion is another capital advantage to the corn crop.

Beſides the dividing a farm in this manner, I have ſeen another method of cultivating arable ones, which ſhould not be here omitted. The farmer provides juſt clover enough for his horſes, and for one or two cows, the

the reſt is all kept in corn, for ſeveral ſucceſſive crops, a part ſummer fallowed every year: and to keep his land in heart, he has more horſes than are wanted in tillage, ſo that a team is employed moſt part of the year in bringing dung, coal aſhes, mortar rubbiſh, &c. &c. &c. from the neareſt town, to manure his fields. In the courſe of crops, no regard is paid to any rules, but ſuch lands ſown as are pretty full of manure, and not very weedy——the worſt piece or two, according to the ſize of the farm, fallowed every year.

The manuring principle of this conduct is excellent: but one remark muſt be palpable to every one, which is, that he expends ſo much money on the farm, that he might certainly as well lay a portion of it down to graſs——but then again comes money. Buying manure in this manner takes much money, but it takes it gradually, in ſmall ſums at a time; whereas,

whereas, to lay down a proper quantity of land to graſs, and ſtock it ſufficiently with cattle, requires a large ſum of money at once: and this diſtinction muſt ever be made in all points that concern the general management of common farmers.—There are many, indeed, who would not lay down their land, were they ever ſo rich, and that from an habitual liking to the plough, which they think the only profitable part of huſbandry.

Supplying the place of cattle with purchaſed manure, is, however, no bad ſuccedaneum, and certainly there are many farmers who grow rich by the practice: but ſtill they would find a greater benefit reſulting from it, if they were not to crop their land ſo often, in conſequence of a manuring. This is a fact much worthy of their conſideration.

The

The reader, doubtleſs, remarks that I ſay nothing of perennial artificial graſſes, ſuch as lucerne, ſainfoin, &c. but the evil is much eaſieſt removed, by laying down a part of the farm to natural graſs, and I began with ſuppoſing (as we often ſee is the caſe) that, for ſome reaſon or other, the farmer would not ſubmit to an expence, the benefit of which would remain when he left his farm. Whereas, in the remedies I offer of ſupplying the want of clover, the advantage is all the farmer's; whatever expence (in moderation) is beſtowed on the clover, will be repaid with intereſt, by the ſucceeding wheat.

Theſe principles, it is true, are very contracted; but it is neceſſary, when we addreſs common farmers, or even write concerning their practice, not to forget their prejudices and contractions. To ſuppoſe them what they ought to be, and

and always urge them accordingly, would, at laſt, be nothing more, to uſe Swift's expreſſion, than hewing blocks with a razor.

ESSAY

ESSAY III.

Of the beſt method of conducting a farm that conſiſts all of graſs land.

A FARM that contains nothing but graſs, appears, at firſt ſight, to admit only of the moſt plain and ſimple conduct, and to exclude variety; but a very ſlight examination will ſhew that ſuch an idea is a miſtaken one, and that there is much difference in the profit, by different modes of conduct.

I ſhould premiſe, that I ſuppoſe the graſs ſufficiently good for any pur-

purpoſe, and that it will fat a large ox.

Now the queſtions at once are---Whether a farmer ſhould apply it to the feeding cows---or to the fatting of cattle, or ſheep? Whether he ſhould keep his ſtock through the winter, as well as through the ſummer?---And whether he ſhould mow the whole for hay? Let us ſpend a few words in conſidering each of theſe methods.

If cows are his ſtock, whether for the dairy or for ſuckling, he muſt provide winter as well as ſummer food. I have known ſome of theſe farms, and the common method is to feed them all winter long with hay, and the remains of the laſt year's graſs, which they keep very late for that purpoſe; and this conduct is ſometimes profitable. Of ſome graſs, it takes three acres to keep a cow the year round; and of ſome, two and a half is ſufficient. There are many paſtures ſo very rich, that it requires no

no more than one and a half, or two;—but in all enquiries of this ſort, we ſhould reaſon upon the medium. Let us ſuppoſe two and a half the quantity: that is, on ſome graſs, an acre for her ſummer food, and the hay and after feed of an acre and half for her winter ſupport;—or, in other fields, it may be an acre and half for the firſt, and an acre for the latter. Theſe are variations which muſt ariſe from the various nature of paſture, ſome feed better, others are beſt for hay.

From this little ſketch it appears at once, that graſs land, thus applied, is by no means free from expences; a large portion of it is to be made into hay every year; that hay muſt be carted and ſtacked: nor is this the only labour requiſite, the cows muſt be conſtantly attended both in ſummer and winter; regularly brought up and drove out; and in winter much care taken of them: if they are uſed for the dairy, the milking re-

quires ſeveral hands for no great number; and if they are ſuckled, that muſt be attentively performed by men. Then again, the dairy muſt have maids to manage it; the wear and tear of all the implements is ſomething; firing is no inconſiderable article, which alſo requires carting; and laſtly, the ſale of the products require more carting, which, and the carrying hay, will render a certain number of draught cattle (though a ſmall one) requiſite: nor is it different with ſuckling, as the calves muſt probably be bought and ſold at ſuch a diſtance, at leaſt, as will require a cart.

Theſe circumſtances are all evident enough, and will admit ſomething towards a calculation of their amount: but no perſon, who is practically acquainted with huſbandry, will venture calculations under the idea of perfect accuracy, which is impoſſible in any thing but mere facts: theſe I

am by no means deficient in, as I know by experience every one of theſe articles minutely; but that experience concerns particular lands, whereas, in an eſſay of this nature, it is only a general experience——the average, if I may ſo expreſs myſelf, of many particular and various experiments, that is of uſe. The nearer one's ſuppoſitions come to a general average, of the more uſe will they be. For this reaſon, however, individuals ſhould not be too ſevere in criticiſing *general* calculations from *particular* practice: my own experience tells me, that method of judging would be very unfair.

I calculate the expence of a dairy, in the above-mentioned circumſtances, to be as follows:

Suppoſe a dairy maid and a boy to fifteen cows.

Wages and board of the maid	*l.* 13	*s.* 0	*d.* 0			
Ditto of the boy	10	0	0			
Firing for 15 cows (the carting and horſes included)	4	0	0			
Wear and tear of the dairy utenſils, &c. ſalt, &c.	1	16	0			
Labour and carting, &c. the butter and cheeſe	1	4	0			
	30	0	0	or		
Per cow	-	-	-		2	0 0

	l.	*s.*	*d.*
Brought over	2	0	0
Mowing, making, carting, and ſtacking, (including the horſes, &c.) of one and one quarter* acre of hay, at 10 *s.* - -	0	12	6
Total £	2	12	6

The product I calculate, ſwine included, to be per cow - -	7	0	0
Deduct expences -	2	12	6
£	4	7	6

Which remainder is the product of three acres of graſs; but two other deductions remain to be made, which are the fencing, and the carrying out and ſpreading the manure, which ariſes in the winter.

* I take the medium of the two former ſuppoſitions.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Product -	-	-		4	7	6
Fencing, 1*s.* per acre -	0	3	0			
Labour, &c. in double carting, turning, &c. and horſes, at 1*s.* per cow *	0	1	0			
				0	4	0
Product of three acres, all expences (rent and town charges excepted) paid				£ 4	3	6

This is 1 *l.* 7 *s.* 10 *d.* per acre. Which is very trifling; and yet upon

* The quantity without ſtraw is very ſmall.

revi-

reviſion of every article, I do not ſee wherein I have over-rated the expences; nor do I think 7 *l.* produce below the medium. Some profit may, however, remain, and as it is not hazardous, may give a farmer a decent income from a large number of cows. One thing is however obſervable, there are a great number of theſe farms in different parts of the kingdom, but it is very ſeldom one finds them managed in this manner, which gives ſome reaſon to ſuppoſe the real event not unlike the reſult of this calculation.

In ſuckling, I ſhould ſuppoſe the account would be nearly as follows.

	l.	*s.*	*d.*
One man and a boy to 30 cows, including the labour of the manure and the fencing, the man's board and wages	20	0	0
Carried over	20	0	0

	l.	s.	d.
Brought over	20	0	0
The boy - -	10	0	0
£	30	0	0
Or per cow - -	1	0	0
Carting calves, excluſive of labour, 1 *l.* 17 *s.* 6 *d.* or per cow -	0	1	3
Mowing, making, &c. &c. of hay, as before -	0	12	6
Total £	1	13	9
The product of a cow, by ſuckling, I calculate at	6	0	0
Expences - -	1	13	9
Product of three acres of graſs - -	4	6	3
Which is per acre - £	1	8	9

This is ſomewhat beyond the dairy article, but not enough to found different concluſions on. It appears to me

me that both methods are unequal to the end, which every man, who farms at all, ought to have in view, if any thing concerning pro fit i his aim. If a farm be ſituated very near a great city or town, butter and milk, and cream, will ſell at an high rate; and within the reach of Smithfield-market, ſuckling is peculiarly profitable; but ſuch inſtances are out of the common courſe, and therefore muſt not be taken into the account.

Let us, in the next place, conſider the application of a graſs farm to the fatting of cattle; and, firſt, of oxen or heifers.——According to the preceding ſtate of a cow conſuming the product of three acres of land, we muſt ſuppoſe, in proportion, an acre to fat a beaſt of forty ſtone, and this in the ſummer, without having any thing to do with winter feeding. All the expence of this management, upon the preceding plan, is the

ſhilling

ſhilling per acre, for repairing the fences.

Now the profit upon ſummer fatting ſuch a beaſt I calculate to be, upon an average, ſomething better than 3*l.* if we ſuppoſe that ſum excluſive of the fences, we ſhall not be far from the mark.

This management at once appears vaſtly ſuperior to that before ſketched, of cows; being thrice as beneficial. Small variations there certainly may be, and I may have miſtook the particular averages of every article relative to cows; but that I have erred ſo far, as not to leave a vaſt ſuperiority on the ſide of fatting, is impoſſible. I ſhould again remark, that the common practice of graſs farms again confirms my concluſion, for where one is applied to the keeping cows, an hundred are uſed for grazing.

In reſpect to the ſtocking ſuch a farm with ſheep, the point depends on the proportion between a beaſt of

40 ſtone and a ſheep; I reckon it to be five to one; that is, an acre of this land will fat five times as many ſheep as ſuch beaſts. I calculate, the difference between buying a ſheep in the ſpring to fat, and ſelling him in autumn, is about 10 *s.* upon an average, the product per acre is, therefore, 2 *l.* 10 *s.* but then there is the wool, which muſt be reckoned at 1 *l.* 6 *s.* or 2 *s.* per head, that is 10 *s.* per acre, or 3 *l.* in the whole; which is (the fencing excepted) juſt the ſame as the beaſts.---I apprehend, however, that the average profit, in the long run, will be better from the latter; and I ſhould prefer them accordingly.

Next comes the method of fatting beaſts through the whole year, and on this head a very few remarks will ſuffice. It is evident, from the preceding minutes, that the profit will be more conſiderable than from cows, but it is impoſſible that it ſhould

ſhould equal the advantage of ſummer fatting, for reaſons evident enough from the preceding accounts. The beaſts ſhould be larger than forty ſtone; they muſt, in the ſpring at leaſt, have the utmoſt plenty of hay, and that of the very beſt ſort, as the progreſſion of the victuals, given to a fatting animal, ſhould always be from good to better: conſequently, they conſume a very large quantity. The moſt profitable fatting of all is, that which laſts through the year; but then the winter part is not on hay.

Laſtly, I muſt notice the management of a graſs farm by mowing the whole for hay: but this is very defective in general, however profitable it may be in the near neighbourhood of a great city. The after feed in this method can only be lett out to others cattle, as it can never anſwer to buy cattle, merely for feeding it off. The amount of labour, of keeping draught cattle, of wear and tear, &c.

&c. muſt all be very conſiderable, and deduct greatly from the produce; and if manure is not conſtantly brought by the return of the waggons that carry out the hay, the whole farm muſt ſoon be exhauſted; nor will the quantity of manure, brought alone by ſuch means, keep a farm in heart under this management.

Of theſe methods, which are thoſe commonly practiſed, the buying beaſts in the ſpring, and ſelling them fat out of the graſs, appears to be the moſt advantageous: next is the fatting of ſheep: the reſt are all greatly inferior to theſe. There are ſome other methods, not commonly practiſed, of which I ſhall offer a few hnts; but theſe depend on certain circumſtances, which ſhould firſt be explained.

If hay, ſtraw, ſtubble, or turneps, can be bought at will, new methods at once open upon us: and as thoſe commodities are to be purchaſed in every

every part of the kingdom, with which I am acquainted, and in any quantities, there will be no impropriety in ſuppoſing ſuch a caſe; and then enquiring whether or not graſs farms may not be applied to more profitable uſes than any hitherto ſketched.

Firſt with cows. When ſtraw is bought, the quantity of manure is very conſiderable, conſequently the product much longer than when the improvement is but trifling: no reaſoning can be clearer than this. With the aſſiſtance of ſtraw, in the double uſe of affording food and manure, I calculate an acre to keep a cow through the ſummer, and half another of hay for the remains of the winter; both which allowances are very ample.--- The account will therefore ſtand as follows. Firſt with the dairy:

	l.	*s.*	*d.*
Sundry expences, as before, per cow - - -	2	0	0
Carried over	2	0	0

	l.	*s.*	*d.*
Brought over	2	0	0
Mowing, &c. &c. half an acre of hay - -	0	5	0
One load and half of barley, oat, or pea ſtraw, at 10*s.* - - -	0	15	0
N. B. However loads, or prices, may vary, the ſum is certainly near the truth; as cows may in many parts of the kingdom be joiſted in a ſtraw yard, at 9*d.* a week.			
Labour, &c. on manure, four times as much as before, or - -	0	4	0
	£ 3	4	0
Product as before - -	7	0	0
Deduct - - -	3	4	0
	£ 3	16	0

Fencing,

	l.	s.	d.
Brought over	3	16	0
Fencing, at 1s. - -	0	1	6
£	3	14	6

Which remainder is the product of one acre and a half, or 2*l*. 9*s*. 8*d*. per acre.

This is nearly double the product of the former method, which is a prodigious difference: and it appears clear to me, that if the detail of an 100 acres was explained in both cases, this difference would be yet greater. It is needleſs to calculate the ſuckling, as both depend on the ſame facts; if one is ſuperior in this method, the other neceſſarily muſt. I ſhould however remark, that in ſuckling, if turneps are always to be purchaſed, they will go much farther than hay; and might very nearly be quite ſubſtituted for them, which would greatly increaſe the profit, even upon this account.

In reſpect to fatting cattle, there are many advantages in buying in autumn: beaſts of all kinds are then much cheaper than in the ſpring, and that beyond the proportion of the wintering: add to this, their being, in all probability, in much better order, with one's own keeping, at the end of the winter, than out of the drover's hands, unleſs ſuch are bought as have been well kept on the improving hand, which muſt neceſſarily be extravagantly dear, as they have paſſed through their firſt keeping, with a profit on wintering them; ſuch as are then bought lean, are ſo truly lean, that much of the following ſeaſon is loſt in fatting them, and the profit conſequently the leſs.

For oxen of 70 ſtone, the principal winter food purchaſed, ſhould be turneps, if they can be had, and with them ſtraw: if turneps are not to be procured, ſtraw alone, which, if good, and given them with attention,

tion, will improve them; that is, they will *thrive*, which is all that is wanting. In the ſpring, each ſhould have a ton of hay, which may be called two-thirds of an acre, which will bring them into good fleſh, and greatly aid the whole fatting. With this management, an acre and one-third of graſs will complete his fatting. The account will ſtand thus:

	l.	*s.*	*d.*
Mowing, &c. &c. two-thirds of an acre -	0	6	8
Straw - - -	0	15	0
One man would take care of ſo many, that attendance is a mere trifle; ſuppoſe however fences and manure included -	0	8	0
	£ 1	9	8
The profit on ſuch a beaſt, by keeping him the year through, muſt be calculated at - -	7	10	0
Carried over	£ 7	10	0

		l.	s.	d.
	Brought over	7	10	0
Deduct expences	-	1	9	8
	£	6	0	4

Which remainder is a product per acre of 3*l.* or, in other words, the ſame profit as by ſummer fatting: which ſhews the neceſſity of ſubſtituting a cheaper produce than hay, for concluding his winter keeping. I do not calculate upon turneps, becauſe they are not every where to be bought. However, as cattle are in many places to be joiſted on them, I ſhall form a variation of the calculation.

	l.	s.	d.
Straw - - -	0	15	0
Four weeks at turneps	0	10	0
Labour - - -	0	8	0
£	1	13	0

	l.	s.	d.
Product - - -	7	10	0
Expences - - -	1	13	0
£	5	17	0

Which remainder is per acre 4 7 0

Upon the whole it appears, from theſe calculations, that the ſcale of product, according to different methods of managing, is as follows:

Firſt. The moſt advantageous method, is keeping oxen through the year; partly on ſtraw and turneps bought.

The next beſt is keeping cows for ſuckling, partly on turneps and ſtraw bought.

The third in ſucceſſion, is keeping oxen through the year, partly on ſtraw bought. Alſo, in the ſame rank, the ſummer fatting of oxen and ſheep.

Fourthly.

Fourthly. The keeping cows for a dairy partly on ſtraw bought.

Fifth. The fatting oxen through the year, nothing bought.

Sixth. Keeping cows for ſuckling, nothing bought.

Seventh. Keeping cows for a dairy.

Mowing the whole, admits too many variations to know where to place it.

A few *general* remarks ſhould be here made on theſe methods. One circumſtance is unſuſceptible of calculation, although a ſmall allowance is made for it, which is the improvement by the manure that ariſes in winter feeding and fatting; this is of ſo much importance, that I am confident the purchaſe of any thing reſpecting it, will anſwer greatly: for the ſake of ſimilarity, I have ſuppoſed the graſs of equal value, and all good. But how many graſs farms are there of a low rent, parts of which are in very poor condition? Without reſorting to calculation, we may pronounce

it highly neceſſary, in ſuch, to raiſe great plenty of manure: calculations will not give us that improvement of turning *bad* land into *good*, without appearing too much to exaggerate, however far from it in reality. I know ſeveral farms, of which kind there are vaſt numbers in the kingdom, all graſs, but three-fourths over-run with rubbiſh, mole-hills, ant-hills, briars, &c. with other tracts, not ſo covered, but poor and wet. Sometimes it is abſolutely neceſſary to plow theſe, but in many caſes they may be as well improved without. Let us ſuppoſe a graſs farm of this nature, what is the beſt method of managing?

The wet lands ſhould be drained immediately, and all the buſhes, briars, &c. &c. grubbed up. A team of three-wheeled carts, drawn by oxen, ſhould be kept conſtantly at work in carting. The mole and ant hills ſhould be ſliced off in ſummer, and

carried to the farm yard, to form a layer to fodder the cattle upon: no expence ſhould be ſpared to cover them to a great depth with ſtubble, which is in almoſt every county to be bought, and nothing makes a greater plenty of manure. If turneps are to be had, a few acres ſhould every year be purchaſed. I ſhould alſo, on ſuch a farm, adviſe that all the hay expended ſhould be bought; it is idle to add if it can, becauſe there is no place where hay and ſtraw are not to be had in any quantities; for inſtance, in every paltry town in England. But as there ſhould always be a certainty of food, it would be abſolutely neceſſary always to have two years hay, at leaſt, before hand, and the advantage of a cheap year (if it is a good one for making) ſhould not be omitted to buy, even three or four years before hand. In the ſame manner, when ſtraw is good and cheap, a large ſtack ſhould be built. Upon theſe prin-

ciples, I would mow none of my own farm, till I had got it into great heart, and was ſure of fine crops of hay; for nothing is ſuch unprofitable trifling as mowing poor ground. I would ſummer ſtock the whole with cows, and winter feed them, in the manner I have deſcribed: at the end of the ſpring, when the cattle were turned to graſs, the manure in the yard ſhould be ſtirred over, and well mixed, and then carted either on to a compoſt heap for further rotting, or at once on to the land, according to the nature and condition of the ſoil.

By ſuch a ſyſtem of management, a prodigious ſtock of cattle would always be kept, a circumſtance alone ſufficient to improve any farm, and a vaſt quantity of dung annually raiſed. This would preſently improve all the land, and fit it for any other method of conducting it (reſpecting ſtock) that might be thought more profitable.

This

This method of laying in a large quantity of hay, whenever cheap, and always before hand, I ſhould likewiſe remark, would render winter feeding, both of cows and fatting beaſts, in the farm of the preceding ſcale, greatly more profitable in ſome ſituations than they there appear to be.

Some grazing farms are ſo very rich, that you may buy a large ox of 60, 70, or 80 ſtone (14 lb.) in ſpring, and ſell him fat from one acre of graſs in autumn. Such will admit of very little, if any, improvement by manuring, and certainly are the moſt advantageous farms in the world; for there are no expences, but immenſe profit; the product cannot fall ſhort of 8, 9, or 10 *l.* per acre, which will very well afford a rent of 3 or 4 *l.*

But in general, tenants of graſs farms have great reaſon to deſire their landlords to give them leave to break up a portion of them, for the mere raiſing of turneps, or cabbages, or ſome

ſome green winter food. Even if it was no more than the mere quantity cultivated every year, without ever introducing a crop of corn, the advantage would be very great, for ſuch plants go infinitely further than any dry food. I much queſtion whether an acre of turneps will not go farther than 5, 6, or 7 *l.* in hay: and an acre of cabbages, far beyond that. Tenants, indeed, are ſenſible enough of this, and frequently petition for a little tillage land; but many landlords lay it down as a rule of conduct, never to allow of any graſs to be broken up. It is abſurd enough, but no leſs true.

The ſcale was inſerted merely as the rough outline of an imperfect idea: every part of it, and all the preceding calculations, are liable to numerous objections: of theſe I am ſo ſenſible, that I could myſelf offer no ſlight liſt: but the ſubject is almoſt new, and it is of ſome conſequence

quence to ſtimulate other writers (though it be by means of errors alone) to ſearch deeper than I have done; to diſplay more numerous connections; and to compare them with a greater accuracy and penetration. This eſſay muſt be conſidered no more than as a hint which ſhould lead to more important concluſions. Others may better reconcile particular facts as the foundation of general reaſoning; in which caſe a much greater perfection might be given it.

ESSAY

ESSAY IV.

Of the means of keeping, the year round, the moſt cattle on a given quantity of land.

GREAT ſtocks of cattle will appear to all, who have conſidered the practice of agriculture, to be of much importance, not only to the farmer, but even to the nation at large: for it is a loſs to the community as well as the individual to have an acre of land feed but one cow, that is capable of maintaining two; in the ſame way, as that man is a uſeful member of ſociety, according to Swift,

Swift, who makes two blades of graſs to grow, where but one grew before.

All who aſſert the conſequence of manure (and none but viſionaries can deny it) muſt neceſſarily be ſenſible how requiſite large ſtocks of cattle are to obtain it: it is no uncommon thing to ſee whole farms improved merely by the feeding of cattle; and that without collecting and increaſing the manure in a farm yard. I have already attempted to ſhew the importance of cattle, towards raiſing good crops of corn; and that an hundred arable acres will yield more wheat and barley, from being connected with a large tract of land uſed for raiſing food for cattle, than three times the quantity, without ſuch advantage. Some miſtaken writers have found much fault with converting arable to paſture land, and with the uſe of artificial graſſes, as if they decreaſed the quantity of corn, and produced

duced and raiſed the price of bread. But ſuch a notion can ariſe alone from not attending to the courſe of country management: the quantity of land *ſown* with corn, may undoubtedly be decreaſed; but this is wonderfully different from the quantity *produced*.

Survey a farm of 300 acres of land; one of theſe writers, if he found but 30 acres of graſs, and 270 arable, yielding 90 acres of wheat, and 90 of barley and oats, would at once conclude, that it was a farm well calculated for national profit at leaſt. Shew him another, in which 200 acres were graſs, and 100 arable, and only 33 acres of wheat annually, he would determine ſuch a farm to be prejudicial to the publick; but nothing would be farther from truth.

I have no doubt, upon an average of ſuch farms, but the 33 acres would yield more than the 90: but with-

without ſuppoſing the difference ſo great, one aſſertion will not be thought raſh, that the quantity of food for man will be vaſtly more conſiderable from the latter, than from the former farm. Wheat is the ſtaff of life among the poor, but it is not their only food: in many countries, the quantity of cheeſe they eat is prodigious: butter, in cheap places, is much conſumed by them, to ſpeak nothing of meat; and if meat be not their common food, yet the greater the quantity in the markets, the more cheap joints will come within the reach of their purſes. But there is another fact, which ſhews that every thing that is food for man, has a mutual effect on every conſtituent part: it is this; a great plenty of one kind of food ſinks the price of all the reſt. Suppoſe beef ſold at 2*d.* a pound, do they think the neighbouring poor will eat ſo much bread as at preſent? Sell good cheeſe at 1*d.* a pound,

pound, will not that have the ſame effect? Gaining plenty of beef and cheeſe, is, in fact, increaſing the quantity of your wheat. And ſo far are graſs lands from leſſening the quantity of food, that they not only yield much themſelves, but enable the adjoining arable to produce a vaſtly greater quantity than uſual of corn.--- It is upon theſe principles that I aſſert the quantity of *food for man* to be much greater from a farm of 300 acres, two-thirds of which are graſs, than from another of which only a tenth is graſs.

With reſpect to turneps and artificial graſſes, the caſe is yet ſtronger, for they maintain more cattle, and are at the ſame time the means of producing much more corn. In Norfolk, the courſe perſued in all the improved parts, is, 1. Turneps, 2. Barley, 3. Clover and ray graſs, for three, four, or five years, 4. Wheat. The quantity of corn appears in this

courſe to be very trifling: but ſuppoſe, inſtead of two crops in ſix or ſeven years, they took three or four——the *acres* ſown with corn, would increaſe greatly; but does any one ſuppoſe that the number of quarters produced, would increaſe in proportion? So far from it, they would not get enough to pay charges, inſtead of making fortunes. Turneps and clover, at the ſame time that they maintain great ſtocks of cattle, may be called the *nurſeries of corn.*—Were I not afraid of the imputation of ſtarting paradoxes, I ſhould aſſert (with a certain limitation however) that *the leſs corn is* SOWN, *the more is* PRODUCED. Take the general practice of many large tracks of country, this would be true: it would not, therefore, be a fair reply, that the way to have vaſt quantities, would be to ſow none at all.

This ſlight diſquiſition was neceſſary, to ſhew that the practice I recom-

commend, is of real utility; and not only to individuals, but to the collective body of the ſtate: conſequently the means of keeping the moſt cattle on a given number of acres is a ſubject of undoubted importance.

In this enquiry it will be neceſſary to throw purchaſed food out of the *general* queſtion; becauſe, however profitable that management may be, in numerous caſes, it would prevent our diſcovering the method of aranging thoſe crops that yield food in the moſt advantageous manner: indeed the ſuppoſition may ſometimes be allowed for the ſake of particular variations in compariſon between different kinds of food: by aſſigning to each *the ſame* amount of that which is purchaſed, which will preſerve the ballance.

The moſt common ſummer food is natural graſs, which is happily, from its great plenty, applicable to a prodigious variety of uſes. Oxen of all

kinds are fatted and fed upon it: cows it keeps for every purpoſe; whether butter, milk, cream, cheeſe, or ſuckling: ſheep are alſo maintained on it for all uſes; whether breeding, fatting, folding, or ſuckling. Nothing agrees better with horſes. Its uſe reſpecting ſwine is but little known to the world, for no experiments have yet been publiſhed, to prove in what degree they can be kept alone upon it; which is a point of ſome conſequence, and merits the attention of the curious in agricultural trials.

In conſidering the quantity of cattle graſs will maintain; it is neceſſary to ſuppoſe the ſoil proper for paſture land; not light and ſandy; and that it is managed in at leaſt a common huſband-like manner; not ſuffered to be poiſoned with wet, and kept clear of deſtructive rubbiſh, ſuch as thorns, briars, thiſtles, docks; and likewiſe mole and ant hills: theſe ſup-

ſuppoſitions are abſolutely fair, becauſe ſuch evils as ariſe, merely from bad conduct, and have nothing to do with the merit of any vegetable.---Throwing out of the queſtion ſuch as are very badly conducted, I take the product of graſs lands in England varies between theſe two points---the keeping three middle ſized ſheep per acre; and the fatting an ox of 90 or 100 ſtone (14lb.) and a large Lincolnſhire ſheep.

I ſtate the product, by ſuch an ox and ſheep, per acre, as the higheſt, becauſe it is the greateſt return I have heard from one acre: it is a common aſſertion, that it is often had in the rich parts of Lincolnſhire.---Lower than the keeping three flock ſheep, I do not think it would be fair to deſcend. It is a vaſt variety of degrees of product that come in between theſe points: if one could fix a medium, it would be of great uſe to the preſent deſign, but it cannot be done

with tolerable accuracy; the following products I take to be near the central point, but they admit a great variety among themſelves.

Summer feeding a milch cow per acre, of a middling ſize; for inſtance, 45 ſtone weight.

Summer feeding a cow of 40 ſtone.

Summer feeding ſuch a cow, and alſo one middling ſized ſheep and lamb.

Summer feeding a horſe.

Summer fatting an ox of 35 ſtone.

Summer fatting an ox of 35 ſtone, and a middle ſized wether.

Summer fatting an ox of 40 ſtone.

Summer fatting an ox of 40 ſtone, and keeping a ſheep and lamb.

Summer fatting an ox of 45 ſtone.

Sum-

Summer fatting	an ox of 45 ſtone, and keeping a ſheep and lamb.
Summer fatting	an ox of 50 ſtone.
Summer fatting	an ox of 50 ſtone, and keeping a ſheep and lamb.
Summer fatting	an ox of 55 ſtone.
Summer fatting	five wethers.
Summer keeping	five ſheep and five lambs.
Summer keeping	ſix ſheep and ſix lambs.
Summer keeping	ſeven ſheep and ſeven lambs.
Summer keeping	eight ſheep and eight lambs.

Theſe points might be multiplied, and yet none poſſibly very far from the medium. Suppoſe I was aſked which four of the preceding I thought neareſt the truth? I ſhould reply,

Summer feeding a milch cow of 40 ſtone.

Summer feeding a horſe.

Summer fatting an ox of 35 ſtone.

Summer keeping five ſheep and five lambs.

This is, however, but an idea, and I ſhould be raſh if I built concluſions, abſolutely upon ſuch a ſuppoſition.

In reſpect to the product of hay, it varies from graſs, which at one mowing will yield 15 *l.* (lower than which I think we ſhould not deſcend) to that which at two affords five tons per acre.

Clover is the moſt common of the artificial graſſes, and ſhould therefore be next conſidered: but as I rejected the natural graſs, which was very badly managed, it is highly requiſite I ſhould do the ſame here: this graſs is ſown by many ſlovenly farmers with the third, fourth, and even fifth crop of corn, but the ill ſucceſs ariſing

from ſuch methods, is not to be laid to the account of clover in general: ſowing with a ſecond crop of corn, is by no means good huſbandry, but as it is the common practice of many tracts of country, it is neceſſary to take it into the account.

Clover in product varies like graſs; but I believe not quite ſo much. I take the bounds to lie between theſe points---Keeping three middling ſized ſheep per acre; and feeding two horſes, and two ſheep, and lambs. I have heard on good authority, of clover doing the laſt: which, it muſt be confeſſed, is a vaſt produce.

Among particulars, which are neareſt the medium, I believe the following.

Summer feeding a milch cow, of about 45 ſtone.

Summer feeding a milch cow, of about 45 ſtone; and alſo two ſheep and two lambs.

Sum-

Summer feeding a horſe.

Summer feeding a horſe, and a ſheep and lamb.

Summer feeding a horſe, and two ſheep and lambs.

Summer feeding two heifers of three years old.

Summer keeping ſix ſheep and lambs.

Summer keeping ſeven ſheep and ſeven lambs.

Summer keeping eight ſheep and eight lambs.

Summer feeding nine ſheep and nine lambs.

Summer feeding ten ſheep and ten lambs.

Summer keeping ſeven hogs, half and three quarters grown.

Summer keeping eight hogs, half and three quarters grown.

Summer keeping nine hogs, half and three quarters grown.

Sum-

Summer keeping ten hogs, half and three quarters grown.

Out of theſe I ſhould fix on the following, as nearer the mean point than the reſt.

Summer feeding a milch cow of about 45 ſtone.
Summer feeding a horſe and a ſheep and lamb.
Summer feeding two heifers, of three years old.
Summer keeping eight ſheep and lambs.
Summer keeping eight hogs.

In mowing, I ſhould fix the extremes, at a ton and a half; and five tons and a half, both at two mowings.

Sainfoin comes next in order; of which it is obſervable, no very bad crops are known, for if it ſucceeds, it never is in an inferior way, being either deſtroyed,

deſtroyed, or coming, ſome how or other, to nothing; or elſe, ſucceeding well, and proving a very advantageous crop. It is neceſſary with this, as well as the other graſſes, to ſuppoſe a good huſband-like treatment; that is, the ſoil to be dry, or at leaſt not a weeping clay, which is the only land it is abſolutely averſe from: that the field be made very fine at ſowing, and free from weeds; as to being rich, or in good heart, it is not ſo nice about that. The extremes of produce I calculate at; from keeping an heifer of three years old per acre, to keeping three cows per acre.

The intermediate ſteps are various; among others I ſhould apprehend the following near the medium.

Summer feeding a milch cow of about 45 ſtone, and maintaining a young heifer beſides.

Summer

Summer feeding a milch cow, and maintaining two young heifers beſides.

Summer keeping a horſe and a heifer of three years old.

As to fatting of beaſts, I know of no experiments of it; ſheep, the beſt authors aſſert, ſhould never come near ſainfoin:---nor did I ever read, or hear of hogs being kept on it; not that I imagine it an improper, or unprofitable food for them, having tried it with ſucceſs myſelf; but a few experiments of an individual ſhould not be made the foundation of general reaſoning.

In mowing, the produce varies from 15C. to three tons and half, both at one cutting, beſides the after feed, which muſt be of value, proportioned to the quantities of hay. I never heard of its being mowed more than once: not becauſe it will not yield enough

enough to make it anſwer two cuttings, but there is a notion that it bleeds it; and writers who have treated on it, give the ſame opinion: in the experiments, however, which I tried on it, in Suffolk, under various modes of culture, I have cut it three times often, and once or twice four times, and I could never find that the crop ſuffered by ſuch treatment; but, as I remarked before, the experiments of a ſingle perſon, on one or two ſoils, ſhould not be taken into the account, when we treat of the averages of a whole kingdom.

Lucerne muſt be next examined, which, like ſainfoin, is in general, either very good, or ſo bad, as not to be ſuffered to remain; in the latter caſe (unleſs the ſoil is peculiarly unfavourable) it commonly fails for want of good management. But there is more difficulty in ſtating the produce of this vegetable, than in any of the reſt, all which are much better

known: it would, however, be unpardonable to omit the moſt valuable, perhaps, of the kind in England, becauſe the uſe of it was not ſo general as it ought to be. Many experiments have been tried on it that will ſerve to guide us, though not with ſuch general authority, as in the preceding plants.

The extremes I apprehend to be, the ſummer feeding a milch cow of 45 ſtone, and a heifer, on one ſide, and ſummer feeding ſix horſes on the other ſide.---The latter is a vaſt produce, but it certainly has been done.

As to fixing a medium, the following ſuppoſitions are offered, as not probably far from it.

Summer feeding two milch cows.

Summer feeding two milch cows and one 3 year old heifer.

Summer feeding two milch cows, and two two-year old heifers.

Sum-

Summer feeding two horſes, and a three year old heifer.

Summer feeding three horſes.

Reſpecting ſheep, fatting of beaſts, and feeding hogs, our authority is too ſmall to found any ſuppoſitions on: nor can we decide more of its merit in yielding hay; ſome writers aſſerting it to be good for nought, for that purpoſe, and others praiſing it extravagantly.

It would be uſeleſs to form any ſcale of burnet, as it is pretty well known to be of ſecondary merit in reſpect of the general maintenance of cattle, though extremely uſeful for particular purpoſes, ſuch as ſpring feeding ſheep and lambs.

Having thus reviewed the principal ſorts of ſummer food of cattle, we muſt next perform the ſame on thoſe vegetables that yield the chief articles of winter food: in doing which,

which, however, ſome limitation is requiſite, for only ſuch muſt come into the account as will *alone* ſupport cattle. Straw is a winter food, but as it is applied in a ſecondary manner to that uſe, it muſt not here be reckoned:—nor will it be altogether ſatisfactory to include any vegetable, ſuppoſed to ſuit only one ſort of cattle; ſo that potatoes ſhould not be included, though an excellent food for hogs. The articles I ſhall examine are, hay, turneps, carrots, and cabbages.

It would be an uſeleſs multiplication of enquiries to examine hay ſingly; it apparently will not bear any compariſon with the other three.---Every one, the leaſt ſkilled in huſbandry, muſt be ſenſible, that the mean acre of any kind of hay can never come in competition with the mean acre of either of the other foods. The examination muſt therefore be confined to turneps, carrots, and cabbages.

There is no vegetable depends more on ſoil than turneps; and on culture, if poſſible, yet more than ſoil: but it is neceſſary to ſuppoſe theſe, and all the reſt of the vegetables I here treat of, to be managed at leaſt in a commonly good huſband-like manner; conſequently, we muſt take no notice of the product of thoſe crops which are not hoed; and yet vaſt tracts of the kingdom are never hoed. Turneps, it is true, ſell in many of thoſe countries at an extravagant price; but we are not *therefore* to ſuppoſe the crops good: the reaſon of ſuch high prices being the uncommonneſs of the crop; for in many of thoſe tracts they do not cultivate a tenth part of what are raiſed in other parts of the kingdom. In a word, we muſt ſuppoſe the ſoil, culture, &c. &c. if not preciſely what they ought to be, at leaſt, upon an average, to be in the ſtile of good huſbandry. The variations of the

crops, thus conſidered, are very great, riſing in weight from ten to fifty tons per acre, tops and tails excluded, and the clean apple weighed alone. Of cattle maintained, the extremes, I apprehend, are,

From *keeping* ſeven months a ſteer, or heifer of forty-five ſtone, to *fattening* in five months four ſteers, of forty-five ſtone each.

The medium cannot be preciſely fixed; but it is near the following points.

Fatting, during five months, an ox of ſeventy-five ſtone.

Keeping, ſeven months, three ſteers of forty ſtone.

Fatting, during five months, two ſteers of forty-five ſtone.

Fatting, during five months, one ſteer of forty-five ſtone; and keeping one ſteer, of forty ſtone, ſeven months.

Keeping, during ſeven months, two milch cows of forty-five ſtone.

Keeping one milch cow during ſeven months, and two two year old heifers.

Fatting eight weathers.

Keeping, during four months, fifteen ſheep.

And of theſe I ſhould apprehend the following nearer than the reſt.

Fatting, during five months, an ox of ſeventy-five ſtone.

Fatting, during five months, one ſteer of forty-five ſtone; and keeping, ſeven months, a ſteer of forty.

Keeping one milch cow during ſeven months; and two two year old heifers.

Carrots are by no means ſo eaſily drawn into mediums, for the culture is but little known, though commonly practiſed in ſome parts of the kingdom: the value is, however, exceedingly

ingly great; and riſes, I apprehend, from fatting an ox of forty-five ſtone, to fatting ſix of that weight. For carrots have frequently yielded a produce of 20*l.* per acre. Perhaps the average may be fatting three ſuch beaſts; or keeping, during ſeven months, two milch cows, and fatting one beaſt of forty-five ſtone. Where a culture is not very common, it is difficult to fix averages.

Cabbages I am laſt to ſpeak of; which, although not common as food for cattle in all parts of England, have yet, by the ſpirited conduct of ſome of the nobility and gentry in the North, aroſe almoſt at once from infancy to perfection. Cabbages have not been cultivated, even there, above a dozen years, and yet they have been carried to above thirty guineas an acre. In reſpect to the mean value, I reckon the extremes, from keeping two milch cows during ſeven months, to fatting eight ſteers of fifty ſtone.

Perhaps the medium lies not far from wintering five cows, or fatting five ſteers of fifty ſtone: for we ſhould conſider, that cabbages being a tranſplanted crop, and requiring good treatment and rich land, they are either not cultivated at all, or to a good purpoſe.

This is the laſt vegetable in my liſt of ſummer and winter food. Some of my readers may poſſibly think it ſuperfluous: but thoſe who reflect on the great conſequence of keeping conſiderable ſtocks of cattle, and who, perhaps, poſſeſs ſoils that would yield beneficial crops of all theſe plants, will not condemn me for aiming at ſomething of a compariſon between them. Huſbandry can never arrive at the perfection which all wiſh for, if its principles be not thoroughly underſtood; if the exact degree of every vegetable cultivated be not known, in relation to ſoil and management; and, in a word, if all the

the various branches of this complex art be not ſo thoroughly ſifted and examined, as to be familiar in every combination.

The *comparative* merit of different ſorts of the food of cattle, is a ſubject that has been ſtrangely neglected by the writers on agriculture. One has treated of lucerne; another of potatoes; another of clover; and another of all theſe: but none has thought of comparing all ſorts of food upon the ſame ſoil. From an accurate, though ſhort deſcription of a ſoil, it ought to be known at once what ſpecies of ſummer and winter food would keep or fat moſt cattle: but as no ſuch knowledge is in the world, conjecture muſt ſupply its place; which, when built on ſome facts, is certainly of more uſe than leaving the ſubject as it was found. Thus in reſpect to the ſtate of the mean produce of the preceding vegetables, had many experiments been

publiſhed on them, they might have been exact; but without ſuch authority, there is good reaſon to believe the mediums, at leaſt, not far diſtant from the points in which I have ventured to fix them; and if not accurate, yet, as I before remarked, ſome knowledge is better than none; ſuch mediums certainly being a better guide in conſidering the method of keeping moſt cattle, than mere incidental conjecture as I proceeded.

They are a freſh inſtance of what was obſerved in a former eſſay, that he who writes upon a ſubject, various from what has been treated by preceding authors, muſt ſpend ſome of his time in explanations, either in an endeavour to clear away the rubbiſh of falſe ideas, that he may afford what, to him, appear juſter ones; or in preparing ſtep by ſtep for introducing opinions and obſervations, which, not being common, may be thought paradoxical. But to return.

The

The ſcale of vegetables for food ſhews us, that all are very uſeful in different ways; and ſome in all. The knowledge of ſome is much more complete than of others; but it is worthy of obſervation, that not one is perfectly known in an experimental manner. Even common natural graſs, although the only food for cattle during ſo many ages, and which, at preſent, is to be found in vaſt plenty wherever land is to be found---yet even this is not fully known. In what degree can a farmer depend on graſs as a food for hogs? No book ever yet publiſhed will anſwer that queſtion: I have aſked it of ſome hundreds of farmers, and never had a ſatisfactory reply.

In the whole liſt, lucerne for ſummer feed, and cabbages for that of winter, appear to be much the moſt advantageous; at leaſt, as far as we can judge by quantity of produce.

As

As to expences of cultivation, and clear profit, it would be endleſs to take them into the account. There can be no doubt but a vegetable that will maintain ſuch a number of cattle, will pay, and well too, for culture. It is not my preſent purpoſe to enquire, how a farm of 2, 3, or 400 acres ſhould be conducted reſpecting crops for the food of cattle. Probably it would be found advantageous to have ſome of all theſe vegetables, for reaſons too numerous to be inſerted here. I confine myſelf, for the preſent, to the vegetables that will enable a man, on a given number of acres, to keep the moſt cattle: an hundred circumſtances and ſituations may render ſuch a conduct much more profitable than cultivating any thing elſe.

A farm may, therefore, be divided into two parts, one under lucerne, and the other under cabbages; and ſo proportioned, that the one will keep in

in ſummer the ſame quantity of cattle as the other in winter; and this I take, in two words, to be of all methods that which, on a given quantity of land, will keep moſt cattle.—And this concluſion equally reſpects a medium of theſe crops, and the utmoſt perfection: they are as much beyond other vegetables in the firſt as the laſt.

The method, however, of commanding great ſucceſs, (and it is ſome queſtion whether greater may not be attained than ever was done yet) moſt certainly is to give both plants all advantages of ſoil, manure, and culture: it is impoſſible that land ſhould be too rich for either. Some crops are deſtroyed by rendering the ſoil exceedingly fertile; but this is very far from the caſe with lucerne and cabbages.

Suppoſing the medium of lucerne to be, ſummer feeding two milch cows, and one three-year old heifer, we

we may call it two cows and a half per acre, or five to two acres; and of cabbages, wintering five cows per acre. According to this proportion, the lucerne ſhould be juſt double the quantity of the cabbages: ten of the latter to twenty of the former, &c. &c.

It is not of conſequence to the preſent enquiry, whether other land be applied to the draught cattle; or whether the proportion be varied in the lucerne to feed them in ſummer, and oats and hay for the winter: theſe circumſtances muſt vary according to an hundred others, of which no mention is here made. The plan upon which I ſhould conduct a farm of this excluſive ſort, would be as follows:

I ſhould firſt fix my team; ſuppoſe four horſes, and aſſign a portion of land for raiſing oats for them, as theſe might follow a part of the cabbages every year, and the crop be

be immenſe. Hay I would buy, and have a good ſtack always beforehand, not only for my horſes, but alſo to allow the cows juſt at calving a ſmall quantity. (N. B. This, I *think*, would be right; but have no authority to *aſſert* that the omiſſion would be wrong.) I would, every year, buy as much ſtubble, or ſtraw, as my cattle could make into manure; which would be, in proportion to the number of acres, a vaſt quantity, conſequently the land always in great heart, and the crops uncommonly good. The horſes would be uſed in plowing for the cabbages; in horſe-hoeing them and the lucerne (for, I think, notwithſtanding many inſtances of ſucceſs in the broad-caſt way, that drilling or tranſplanting are better methods); in carrying the food to the cattle; in carrying out the dung, &c. and their leiſure time ſhould all be employed in bringing manure from the neareſt

place where it could be purchaſed. This management would be the ſame, whatever uſe was made of the crops, either ſuckling, milking, or fatting. The latter ſhould be tried with the lucerne, and I think would hardly fail; but no food whatever fats a beaſt better than cabbages. Such a ſyſtem, I apprehend, would be attended with very great ſucceſs.

As to the particular treatment of the crops, it is foreign to the preſent deſign to enter into particular explanations on that head; but a few remarks I find difficult to omit. Lucerne is a vegetable ſurpriſingly tender in its infant ſtate, and as remarkably hardy when arrived at maturity; but it will at no age bear to be incommoded with weeds. Whatever be the method of cultivating it, one may venture to pronounce the crop very profitable, if kept clean from thoſe enemies. There are many reaſons for preferring

ring the drilling, or tranſplanting methods to the broad-caſt: the weeds are thereby abſolutely at command, and want nothing but reſolution and money totally to eradicate them at any time. But all the reſolution and all the money in the world will not keep a broad-caſt crop equally clean. The horſe and hand hoeings alſo looſen and pulverize the ſoil, which is, of itſelf, a matter of no ſmall conſequence; and yet of greater in enabling any manure, that is ſpread on the ſurface, to take full effect of the crop. In an annual crop I have found, by experience, that the plants in the new huſbandry reap, by no means, an equal benefit from manure with thoſe in the old. But it is the very contrary with perennial ones: the ſurface of a field of broad-caſt lucerne, when three or four years old, is almoſt as hard and compact as a barn floor; nor is the effect of ſevere harrowings a reme-

remedy half ſufficient to the evil; in ſuch a ſtate much of the manure is uſeleſs.

But in annual crops, the manure is turned into the ſoil to the roots, and takes full effect.—Another reaſon for preferring tranſplanting or drilling to broad-caſt ſowing, is the duration of the crop, which from divers experiments, as well as from reaſon, there is good foundation to believe will be five times as long; which is undoubtedly a matter of no trivial conſequence: but the great point is the deſtruction of the weeds, for which purpoſe a horſe and hand hoeing are neceſſary to every cutting; and the men who hand-hoe the crop ſhould ſtoop down and pluck out all weeds with their fingers, which their hoes cannot get at. Nor would it be wrong once a year, in drilled crops, to chop out the weeds with an inſtrument called an hack, and not regard cutting

ting up ſome of the lucerne with them, for, where it is thick in the rows, that will be a benefit. This ſyſtem of *cleaning* will, with good manuring, enſure an ample cutting every month, from April to October, both incluſive; and enable it to maintain far more cattle than the medium above mentioned.

For cabbages, the land ſhould be double plowed; that is, one plough to follow another in the ſame furrow, and rendered very fine: it ſhould, at laſt, be thrown on to ridges (arched up) of that breadth the rows are deſigned to be from each other, and, after an ample manuring, the plants ſet, one row on the top of each ridge; they ſhould, while growing, be horſe-hoed four times, and hand-hoed thrice: with this attention, the large Scotch ſort will grow to a vaſt ſize.

I have not ventured theſe hints by way of inſtructions how to cultivate

theſe vegetables; that would require much more room than I have to ſpare at preſent; beſides, the only valuable inſtructions are the relation of experiments. Thoſe who give directions to raiſe plants, in the ſtile of receipts to make puddings, might as well be aſleep. All I meant by this little detail, was a hint by which to judge of theſe crops. Such as have been managed upon a more ſaving and contracted plan, ſhould not be thought to prove any thing againſt the exiſtence of ſuch as I have before mentioned.

Many of the vegetables inſerted in the ſcale I offered, are extremely profitable, and highly deſerving the cultivator's attention: nothing here inſerted concerning lucerne and cabbages, as their ſuperiors, ſhould be conſtrued into any general diſapprobation of them; nothing has been further from my thoughts. As much as I venerate lucerne, I have culti-

cultivated ten times as much clover; and yet the quantity of lucerne I have had has been no trifle. As warmly as I have expreſſed myſelf on cabbages, I have had twenty times as many turneps, notwithſtanding my cultivating that uncommon vegetable on a large, as well as a ſmall ſcale*.

Indeed, to a common farmer, before theſe new modes of culture become quite general and familiar to them, clover will prove a more profitable plant than lucerne; unleſs he makes his attempts with much greater ſpirit than is common with that ſet

* For ſeveral years I carried on a vaſt variety of experiments on all kinds of vegetables that either were commonly applied to huſbandry uſes, or that I conjectured might be ſo; and that to the number of ſome thouſands of trials. From them I have extracted thoſe which I think of moſt uſe, and ſhall lay them before the publick, in hope of being thereby as uſeful to the community as my contracted ſphere of life will allow me. Further than which I can offer nothing but good wiſhes.

of men. Clover, as a vegetable that will ſucceed well under a cheap compendious practice, is invaluable: it will pay the cultivator excellently well for taking very little trouble. A farmer that has lucerne put into his hands, as better than clover, will certainly try it as he would that graſs; that is, ſow it broad-caſt among a crop of corn, and, very likely, after two or three other crops of corn; and, at the end of the firſt year, he would expect a ſpecial crop of wheat upon plowing it up and harrowing in the ſeed. In this culture, what crops of lucerne would he get?—Beſides, the expence of ſtocking this graſs is ſo great, that we may ſuppoſe it will keep many farmers (as I freely confeſs it did me) from cultivating it upon a very large ſcale. Lucerne, well managed, will carry above twenty pounds worth of cattle per acre. The ſtock, therefore, of 100 acres only, amounts to

2000*l.* beſides all ſtanding and incidental charges.

But before I conclude this ſlight eſſay, I muſt be allowed to add a few words on the general ſyſtem of keeping very large ſtocks of cattle. I have, in this enquiry concerning lucerne and cabbages, ſpoke much of keeping cows. We have no experiments extant that prove the efficacy of the firſt in fatting cattle; therefore more attention ſhould be given to its application to cows. Another circumſtance, which ſhould not be overlooked, is a collateral profit by cows, that of hogs. From the experiments which I have tried, and the obſervations I have made, I think there is great reaſon to believe the grand profit of dairies to be a ſecondary one; that ariſing from the hogs maintained by them. And this circumſtance points out the propriety in dairy farms, of preparing ſome articles of food

merely with an eye to hogs; yet this practice is ſcarce ever found among common farmers.

In this point a particular management is requiſite; the dairy ſhould be applied alone to that uſe for which it is peculiarly adapted, viz. the weaning pigs, and feeding ſows that have young pigs; but nothing can be more abſurd than the common management of feeding hogs half and three-fourths, grown and fatting large hogs upon ſkim milk, and butter and cheeſe whey.

I think it is evident enough, from this ſtate of the caſe, that a different management is much wanting, that the utmoſt profit may be made of perhaps the moſt uſeful of all animals, and that which moſt affects, though almoſt unſeen and unknown, the price of proviſions. For this purpoſe it is very plain that the number of young pigs juſt weaned, and

and ſows which have young pigs that can be maintained by a dairy, ſhould regulate the number of hogs kept, and the food provided accordingly. In other words, that there ſhould be ſuch a ſucceſſion in the litters, that the ſkim milk, or butter milk, and cheeſe whey, may never be applied to any uſe but feeding ſuch young pigs, and ſows that have pigs.

This, it muſt be confeſſed, opens a moſt extenſive field of proportion; but, I am confident, not more extenſive than profitable. Suppoſe, for inſtance, it is found by experiment that twenty cows will yield in a year food ſufficient for maintaining three or four litters of pigs: now, during ſome months, the quantity may not be half ſufficient for this, and during others, greatly more than ſufficient. The means, therefore, of dividing it equally, is by aſſigning the given number of litters,

and feeding them out of ciſterns in which the milk, &c. is preſerved, that there may never be a neceſſity of waſting it, or giving it uſeleſsly to the other hogs in the height of the ſeaſon, when the quantity is very great.

Having by this experience diſcovered the proportion between the litters of pigs and the number of cows, the next buſineſs is to enquire the number of pigs whoſe weaning is completed,----of thoſe that are turned out after weaning,---of hogs half and three-fourths grown,---and, laſtly, of ſuch as annually come to be fatted, that meat of different kinds may be provided for the reſpective uſes. We have ſuppoſed the dairy food applied to keeping when young, and to weaning them; in the next ſtage, I apprehend, we muſt uſe carrots and potatoes, both which roots are much affected by hogs; and I know, from experience,

ence, will even wean young pigs: conſequently a ſufficient proviſion of their crops ſhould be made for keeping the pigs after they are weaned, till they are large enough to turn out to green food.

In reſpect to the latter, that which, in ſeveral parts of the kingdom, is moſt known as a peculiar food for hogs, is clover*, which agrees with them wonderfully well; keeping them, without any aſſiſtance of other food, from being a third part grown till they arrive at their full ſize; and, if they are well managed, they will be kept totally in the field (there muſt be water in it) and never ſuffered to come home till the clover ſeaſon is over, that is, till the wheat ſeed-time; after which they ſhould

* There is no reaſon to think that lucerne would not be equally good for this purpoſe, and, perhaps, better; but the knowledge of the fact is very incomplete.

at once (if there is no fall of acorns for them) be ſhut up to fatting: in which laſt operation carrots and potatoes ſhould be again called in, and they will fully fat them; though the moſt advantageous way is to complete their fatting with a few peaſe.

From this train of management appears the crops which ſhould be cultivated, and the proportions of them for the collateral uſes of a dairy: an object which is, beyond doubt, of great importance to agriculture; but which, I am ſorry to ſay, is little known or attended to by nine-tenths of the kingdom. It is, however, much to be regretted, that a large ſeries of experiments, in which the due proportions were preſerved, are not undertaken, that all points might be experimentally known; and this, notwithſtanding the expence of procuring ſuch an under-

undertaking, for the benefits that would certainly result to the agriculture of the whole kingdom, are undoubtedly too great to render the expence of trials an objection.

ESSAY

ESSAY V.

Conſiderations on the Oeconomical conduct of ſuch gentlemen as make agriculture either their buſineſs or amuſement.

PERHAPS we might, without any great impropriety, call farming the reigning taſte of the preſent times. There is ſcarce a nobleman without his farm: moſt of the country gentlemen are farmers; and that in a much greater extent of the word, than when all the country buſineſs was left to the manage-

management of the ſtewards, who governed, in matters of wheat and barley, as abſolutely as in covenants of leaſes, and the merit of tenants; for now the maſter overſees all the operations of his farm, dictates the management, and often delights in ſetting the country a ſtaring at the novelties he introduces. The practice gives a turn to converſation, and huſbandry uſurps ſomething on the territories of the ſtable and the kennel; an acquiſition which I believe, with reaſonable people, will be voted legal conqueſt.

But to ſpeak in another ſtrain: all parts of rural œconomics are, at preſent, much ſtudied, and no leſs practiſed. It is impoſſible but this admirable ſpirit, which does ſo much honour to the preſent age, muſt be attended with great effects. For men of education and parts cannot apply to any thing without diffuſing a light around them; much more

more ſo when they give their attention to a buſineſs that hitherto has occupied few beſides the moſt contracted and moſt ignorant ſet of people in the world. And facts, as far as they have been diſcovered, warrant this opinion; for, I apprehend, no one will diſpute there having been more experiments, more diſcoveries, and more general good ſenſe diſplayed, within theſe ten years, in the walk of agriculture, than in an hundred preceding ones. If this noble ſpirit continues, we ſhall ſoon ſee huſbandry in perfection, as well underſtood, and built upon as juſt and philoſophic principles, as the art of medicine.

This general purſuit hurries all kinds of people to farming. Even citizens, who breathe the ſmoke of London five days in the week throughout the year, are farmers the other two; but, what is more to the preſent purpoſe, many young fellows of

of ſmall fortune, who have been brought up in the country, addict themſelves to agriculture; numbers even deſert the occupations to which they were brought up, and apply to a trade ſo much more pleaſing and independent.

Many are the young people whoſe relations having left them a farm or two, (by no means to make them country gentlemen, but as a fund to raiſe money for proſecuting the buſineſs perhaps of a compting-houſe, or a ſhop) they are captivated at once with the idea of living in the country, *upon their own eſtates*, and turning over a book or two of huſbandry, (they can ſcarce lay their hands on one but will promiſe them a fortune in ſix weeks) find nothing ſo eaſy as to make a great income by farming. So flattering a reſolution is ſoon taken, and they commence their new profeſſion.——Nor is this the only inſtance; all ſorts of people,

ple, not abſolutely fixed in other employments, partake of the faſhion, and turn farmers. Phyſicians, lawyers, clergymen, ſoldiers, ſailors, merchants. The farming tribe is now made up of all ranks, from a duke to an apprentice.

No fault is to be found with this rage for agriculture; in whatever manner it is conducted, many beneficial effects muſt inevitably flow from it: but what I ſhall aim at in this little ſketch, is to offer ſome cool advice to thoſe who embrace huſbandry *as a trade*, without knowing any thing of its practice; who embark themſelves and their fortunes in a ſhip which may either be perfectly ſound, or equally rotten for any thing they know of the matter: to ſuch, a few cautions, relative to the œconomical parts of their new buſineſs, cannot be unimportant. In one reſpect the conſequences *may* be exceedingly bene-

ficial; a little prudent attention may prevent loſſes and ruin, which will bring diſcredit, however unjuſtly, on the buſineſs in general; a circumſtance which all who love agriculture ſhould do their utmoſt endeavours to prevent.

The firſt and grand evil to which adventurers in huſbandry lay themſelves open, is the want of money to conduct their farm properly. In this reſpect they miſtake worſe than common farmers, who never proportion their land to their fortune as they ought; but gentlemen ſhould apply a much larger ſum of money to it than farmers, for reaſons obvious to all the world.

No human power can controul or remedy this error while perſiſted in; it muſt inevitably grow every day worſe and worſe, till utter ruin ſucceeds. And here I ſpeak of the moſt common practice, without giving into any expences, but thoſe uſual

uſual in agriculture. But if any account is taken of experimental huſbandry, or the practice of what is met with in books, all this becomes ten times ſtronger. As this matter is the moſt important of all others in the conduct of young beginners, I ſhall beg leave to enter a little more into the nature of the caſe.

The great error of common farmers, is the hiring too much land in proportion to their fortunes. We conſtantly, through three-fourths of their lives, ſee the effects of this, notwithſtanding their practiſing the moſt ſevere œconomy, notwithſtanding their conſtant attention to their buſineſs, and their even labouring very hard themſelves. The inconvenience muſt, in neceſſity, be much greater with a perſon who can neither labour, practiſe a regular œconomy, nor give a conſtant attention to his buſineſs; and who, added to all this, knows nothing of the matter.

If he depends on the advice and aſſiſtance of another perſon, that perſon muſt be paid: ſo that in whatever light we view the caſe, he is undoubtedly under a ſtronger neceſſity of having a ſufficiency of money than any common farmer.

A gentleman of ſmall fortune walks over a farm of perhaps 200 acres of land; he ſees an old waggon or two, three or four carts, ſome ploughs and harrows, ſeven or eight ſhabby looking horſes, a cow or two, and a few ragged ſheep. He goes into the houſe and ſees the men feeding on fat pork, or bread and cheeſe: he views nothing that gives him any idea of expence; very poſſibly all he ſees might be purchaſed for an hundred pounds: and this *apparent* want of but little money, muſt give him a notion that a trifling ſum will ſtock ſuch a farm. Nothing is further from his head than conceiving the prodigious expence

pence dependant on every thing he ſees. If he looks at an old rotten plough that lies in the yard, it never occurs to his mind what a train of expences that inſtrument, which may not be worth five ſhillings, draws after it. If he aſks advice, it will probably be of ſome farmer or bailey he deſigns to employ: now the event is too much their intereſt to undeceive him, however miſtaken; for his ruin cannot enſue without their being much the richer for it. Theſe ſuppoſitions may appear ſomewhat far ſtretched; but not to thoſe who have had experience of the lower kind of country life.

There is no doubt but a gentleman may turn farming to good account, and yet be cheated for ſome time by the people around him: he pays for experience; but then he gets it, and that will, with good management, afterwards pay him again; but then large ſums of money are requiſite for

this; and in the ſtocking a farm, good allowances ought to be made for ſuch unſeen expences.

After the view of ſuch a farm as I now ſuppoſed, which convinced the gentleman that a ſmall ſum of money would do for farming, we will ſay he hires it. From that day he will be very buſy in viewing his land, in pointing out improvements, and talking the whole matter over with his aſſiſtant or adviſer. Every hour (if he has the leaſt genius) will diſcloſe ſomething or other that wants to be done. His men will tell him, very plauſibly and ſenſibly too, that ſuch a ditch ſhould be done; that this field wants draining moſt terribly; that that pond would pay exceedingly well for emptying; and, in a word, an hundred things that plainly ought to be executed. This croud of buſineſs renders him deſirous to know what others have done in the ſame ſituation: he turns to books,

books, a new world ſtarts upon him at once; all he has been adviſed is demonſtrated to be right, and a million of things beſides, he never dreamt off, proved as clearly as any axiom in Euclid. His firſt half-year's rent is not paid before he wants money.

The truth of the matter is this: every common labourer can point out many things that ſhould be done; the bailey many more; and books, ten thouſand times as many as both the others put together. Now, in this immenſe maſs of advice, the miſchief *(to ſuch* a gentleman) is, that much of it is very rational and good; if all was abſurd, the whole would probably be rejected: but the beſt advice upon earth cannot be executed without money. It matters not a groat that a work is demonſtrated to be expedient, and even neceſſary, if I have not caſh to execute it.

The great point, therefore, is the aſſigning a proper ſum of money to the buſineſs; and if a man trades upon *his all*, to take no more land than he can perfectly manage, with proper allowances for his not being experienced in the buſineſs. As to the particular ſums requiſite for given quantities of lands, it is impoſſible to ſketch any thing of that ſort in the bounds of an eſſay; but I have treated that matter pretty largely in another work, called *The Farmer's Guide*. One hint, however, I ſhall give here: when the gentleman has made all enquiries and eſtimates, let him quadruple the amount, and he will be much nearer the truth. Every conſideration that can have influence on a man thus engaging himſelf in agriculture, call on him to be cautious in not taking too much land. If he purpoſes to make his buſineſs an amuſement, ſure there is more pleaſure in viewing a few fields

fields in a neat and garden-like order, than in wandering over a great many that exhibit no mark of being cultivated by a gentleman!

If experimental agriculture, or the practice of ſuch methods of culture as are recommended in books, be thought of, it can alone be practiſed by having little land, but much money. If a gentleman would ſhine among his neighbours, if he would farm (as many, by the by, do) that he may *talk* of farming, he ſhould, by all means, confine himſelf to ſuch a ſpace as he can abſolutely command; for none of his company would give ſixpence to be ſhewn a parcel of common crops managed no better than by a common farmer; ſuch will not afford him matter for converſation. One acre, cultivated in a maſterly manner, will, in this reſpect, be a much more fruitful ſource, than an hundred managed like

like his neighbours. But all this requires plenty of money, which no man can have who over-trades himſelf.

Reſpecting the *providing* money, one remark is requiſite. A perſon, at the beginning of his practice, who deſigns to make agriculture a trade, ſhould undoubtedly poſſeſs the ſum he throws into it, clear of all debts whatever: for borrowed money may be an excellent means of advancement to a man who has laid a ſtout foundation in a handſome ſum of his own, and much experience; but is a very fatal one where theſe requiſites are wanting. When once a man has really gained, and, probably, paid for experience, finds that his buſineſs, though ſmall, is profitable; that he could diſpoſe of a ſum of money to good advantage, in ſome addition *that he has tried with ſucceſs*; in ſuch a caſe, money ſhould undoubtedly be had; and if a farmer

mer poſſeſſes it not himſelf, he ſhould borrow it of another. A ſpirited reſolution is as neceſſary for advancement by huſbandry, as prudence. In gaining due experience it is impoſſible to be too prudent; whatever is doubtful, requires much caution: but when uncertainty gives way to conviction, real prudence conſiſts in diſcarding caution; and having once determined a meaſure to be right, to execute it with ſpirit and celerity. A ſituation in which borrowing large ſums of money may be the higheſt prudence. All men, whatever be their buſineſs, that act not upon theſe principles, want either *prudence* or *reſolution:* the one is as neceſſary as the other. The want of the firſt, will overthrow him in the very beginning of his career; and the abſence of the ſecond, will ſink him when in ſight of the goal.

Another point which a perſon who begins farming has to conſider, is, the

the employment of a bailey. He will find this determination a matter of ſome conſequence, and ought to be well reflected on. Many reaſons are to be offered for, and many againſt it. It may, in the firſt caſe, be aſſerted, that in every ſpecies of buſineſs the maſter ſhould know more, or, at leaſt, as much as the man, that no errors may paſs in the conduct of the latter, without being ſeen and underſtood by the former. That the queſtion does not turn on the employment or non-employment of ſuch an excellent bailey as may eaſily be deſcribed, but of ſuch an one as chance or the common courſe of ſuch matters will probably diſcover; in which caſe he may be ſuppoſed bad, or indifferent, as well as good, and the maſter without the requiſite knowledge to diſcover whether he is the one, or the other. That the idea common in moſt countries is, that of nine baileys out of ten being

knaves; which notion could not become general without having ſome foundation in truth: nor is this any-wiſe ſurpriſing, for a ſervant placed in a truſt which in itſelf abounds with the temptation of breaking it, and over-looked by a maſter ignorant of the buſineſs, moſt certainly is a ſituation that would, in any other trade, as well as farming, prove wonderfully fertile in *creating* knaves.

That a bailey, from the nature of his office, has ſo many opportunities of being unfaithful without detection, that he may, in one year, defraud his maſter of more money than twenty labourers or ſervants can cheat him of. That the expence of one proper to overſee and regulate a buſineſs is ſo great, that it would ſwallow up all the profit of a ſmall farm; conſequently can never, with propriety, be recommended but in a large buſineſs; and ſuch no gentleman, ignorant

ignorant of huſbandry, ſhould at once venture on. That a bailey having been brought up totally in the common practice, has an averſion (found among all farmers) to new practices, and could, therefore, give his maſter no aſſiſtance in many caſes wherein he might want it; but, on the contrary, would probably thwart his meaſures, and occaſion a want of ſucceſs. For theſe, and many other reaſons, baileys are thought in moſt caſes uſeleſs, and in many detrimental.

On the other hand it is alledged, that a young practitioner in farming muſt neceſſarily be ſo much at a loſs about a great variety of matters that come before him, of which he is ignorant, that if he does not keep a bailey, his whole buſineſs will infallibly ſuffer; his ſervants will impoſe upon him in an hundred points, and aſſert every thing to be the cuſtom of the country: his labourers

will do the ſame in all their work and prices: his cattle will be ill managed, and his crops ſpoiled: conſequences much more fatal than the diſhoneſty of any bailey, be he ever ſuch a knave. That a gentleman who does not employ a perſon of this ſort muſt, ſo far from rendering his buſineſs a pleaſure, ſubmit to it as a ſlave. He muſt be abſent from home no more than the loweſt farmer; and he muſt at all ſeaſons, hours, and weathers, attend to every motion of his people. He muſt ride about the country to fairs; he muſt frequent markets: in a word, he muſt let himſelf down to the loweſt company; and if he has the leaſt taſte, or the ideas of a gentleman, ſuffer continual uneaſineſs. That, by the employment of ſuch a perſon, he not only eſcapes all theſe diſagreeable circumſtances, but likewiſe learns, at the ſame time, the principles and the practice of his buſineſs:

by

by the help of a bailey, well ſkilled in common huſbandry, he will, in a few years, acquire an equal knowledge; and, conſequently, have it fully in his power to overſee and controul the bailey himſelf, and never lay himſelf open, through his ignorance, to be impoſed upon. That the propriety of keeping a bailey, even in an œconomical view, is proved by the practice of moſt great farmers, a ſet of people ſo ſharp-ſighted to their intereſt in theſe matters, that they would never ſuffer a conſtant, or, indeed, any train of impoſition. That all gentlemen, whether they have farmed a long or a ſhort time, but eſpecially beginners, find that ſervants and labourers will not obey them ſo well as a perſon nearer their own level in life. Gentlemen never have the work done that common farmers have; but a bailey will procure as much for his maſter as any farmer has, provided

the

the maſter encourages this head ſervant, and makes it his intereſt to uſe him well. For theſe reaſons, as well as others that might be urged, the expediency of employing baileys is aſſerted.

Sir Roger's deciſion, *much may be ſaid on both ſides*, is here very applicable; for neither opinion ſhould be embraced in abſolute excluſion of the other. It may, therefore, be of ſome uſe to point out, in the ſuppoſed conduct of the gentleman juſt going to farming, ſuch a courſe of management as may obviate, if not remove, the objections of both parties.

The moſt difficult point is the *ſize* of the farm; as nothing but a conſiderable buſineſs will pay the expence of a bailey; and there can be no doubt of the imprudence of beginning with a large farm, dependant wholely on the honeſty and ſkill of another man. I think, for this

reaſon, the gentleman ſhould begin with a ſmall farm, not under the expectation or the notion of making a ſhilling profit, but for the more important advantage of gaining experience enough to keep a bailey when he enters on a larger buſineſs. I am ſenſible there are objections to this conduct; but none in difficult points can be invented that is free from them; the only choice is that which has feweſt.

In a ſmall farm, he will not find the trouble of gaining a pretty tolerable ſtock of knowledge and experience, ſo great a drudgery as ſome may think; he will learn the prices of the country of all ſorts; and diſcover the proportions between price and labour in ſuch a manner, that he will not be much to ſeek, in any country,——the common management of arable lands:——he will ſoon gain the application of manures, as known by country farmers; and ſuch

a knowledge of cattle as will, at leaſt, prevent his falling into groſs errors. In his converſation with labourers and farmers, he ſhould make enquiries after different methods of farming; and make memorandums of ſuch replies as he thinks moſt ſenſible. But a greater ſource than all this is obſervation: let him look over his hedges, and ſee what his neighbours do with their land: let him walk about the country for the ſame purpoſe, and compare the practice which he *ſees* with the opinions which he *hears*. It would be for his intereſt to be acquainted with one or two decent ſenſible farmers, that will not take a pleaſure in miſleading him; ſuch are every where to be found; it only wants a little penetration to diſcover the proper people to apply to. Let him invite them to dinner, and now and then give them a bottle of generous wine, and chat freely about country buſineſs. He

will find it no difficult matter to learn from them the chief of what they know.

Now I do not offer theſe means as an inſtruction how to make himſelf a complete maſter of agriculture, or to make at once a fortune by it; all I pretend he will gain by it, is ſuch a ground-work as will afterwards allow him to erect the wiſhed-for building on. He will, in this manner, gain experience ſufficient to venture, I ſhould apprehend, in three years, on a large farm, with the aſſiſtance of a bailey. There is no reaſon for a man of ſmall fortune, or rather of not a large one, repining at his time ſacrificed merely to experience in common huſbandry.

One of the chief objections to a bailey is the ignorance of the maſter: by ſuch an apprenticeſhip as I propoſe, he will know enough of the buſineſs to direct the bailey what he would have done, without fearing to

expoſe himſelf by abſurd orders (I am here ſpeaking of the common pratices), and without any neceſſity for its being conducted without his own aſſiſtance. He will alſo know enough of prices to direct the bailey how far he ſhould bid for any commodity at a fair or a market; and the price he will allow him to ſell at; all which are powerful means of controuling even the allowed knavery of ſuch a ſervant.

Unleſs a gentleman reduces his buſineſs to very great ſimplicity, he will find too great a fatigue, and too conſtant an aſſiduity, requiſite to render farming of conſiderable profit. Keeping all the people employed ſtrictly to their bargains; overlooking the ſervants as to their hours of plowing, and other work; and likewiſe the manner every thing is done in, with a variety of other articles, require an unceaſing attendance: no gentleman that keeps any company, or, indeed, that amuſes

himſelf with any thing beſides his buſineſs, can perform it: he muſt employ a bailey, whatever be his opinion.

Reſpecting his management of that bailey, a little conſideration and experience will ſhew that buſineſs, of ever ſuch an extent, may be thoroughly overlooked and known by a maſter through ſuch firſt ſervant. It is not requiſite to obſerve and watch him as much as he does the reſt of the people; a much leſs degree of attention will effectually do. The gentleman ſhould have a minute-book of work laid before him every evening, that he may know diſtinctly every thing his teams and men have that day been employed about: as he knows the meaſure of his fields, he can, at any time, tell if the proper quantity of work of all ſorts be executed or not; and reprove his bailey for omiſſions. As to the manner in which the work is performed,

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it is very eaſy, when he rides out, to come unawares upon ploughs, to ſee if they go their proper depth; or upon carts, to ſee that they load fair; or into the hay or harveſt field, to ſee what hours the people work, and how they perform their buſineſs. When a bailey finds the buſineſs under him obſerved in this irregular manner, for which neither he or the men can be prepared, he muſt neceſſarily be ſpirited, and alive in his attention, and keep every part of the buſineſs in good order. In caſe of abſence, when he returns, he has recourſe to the minute book, for every day's work of all kinds: a method ſo exact will not allow him to be deceived. When corn is thraſhed, carried out, or ſowed, or bought for any purpoſe, all is entered, ſo that neither miſtakes, nor foul play can enſue without confuſion, and conſequently diſcovery.

All money matters ſhould go through the hands of the bailey, who muſt keep an open book in the moſt regular manner, to which the maſter can have recourſe at any time: (a room, for inſtance, with each a key): this book ſhould be balanced every Saturday night; and whenever much money is in hand, which the maſter muſt always know by the minute book of tranſactions, he ſhould order the bailey to bring him ſuch ſums as he thinks proper, to be charged to his own account, that no temptation of conſequence ſhould ever exiſt to induce the man to ſwerve from his fidelity. But when I ſay *all* money dealings, I except the moſt important: a conſiderable balance in the hands of a corn merchant, or a ſaleſman, may be drawn for by the maſter; but it ſhould be entered by the bailey in the account of receipts, and immediately wrote off in his maſter's account. The reaſon

reaſon of this is, that the bailey may himſelf be convinced of the annual profit or loſs; that in caſe the latter happens, he may receive a proper reprimand for general conduct: and, on the contrary, in caſe of conſiderable profit, the gentleman ſhould make him a gratuity, by way of encouragement.

This mention of accounts reminds me of the vaſt importance of regular accounts to a gentleman farmer. This is one of the advantages he has over the common farmer: and, I think, one of the greateſt. The latter knows whether his buſineſs is, upon the whole, profitable or not, but only gueſſes the particulars: ſome articles may even be unſucceſsful, without his knowing any thing of the matter; and as to the aggregate of annual profit, he never knows the real amount of that.

But I have heard ſome people aſk, *What is the good of accounts? Will*

accounts

accounts turn a bad farm into a good one? Or will they recover loſſes that ignorance have occaſioned? Nothing can be more miſtaken than ſuch ideas. If a farmer knows not the degree and amount of his profit or loſs on every article, and by every field, it is impoſſible he ſhould poſſeſs a due experience of the paſt, or ever be able to make it a guide to the future. Every common farmer gueſſes at all theſe particulars, and acts accordingly, which ſhews their ideas of the utility of the knowledge. What is experience, but knowing that certain cauſes have been attended with ſuch and ſuch effects? But what is the knowledge of effects, where a thouſand are all jumbled into one account, with nothing but random gueſſes to form diſtinctions?

Various fields of wheat are managed in a very different manner: is it not of conſequence to the farmer to know exactly the product, the expences,

pences, and the neat profit of each? Is he not thereby a better judge of the merit of each method he uſes? And will he not be able to manage future crops with more *experience* than if he had gained none of this knowledge? From keeping ſuch an account of each field, he knows the proportions of rent, ſeed, labour, wear and tear, &c. &c. and the crop; and ſees in what manner the latter anſwers to the former; and, by a compariſon between different fields and modes of culture, is enabled to judge which is moſt probable, in future, to pay him beſt. Two fields of the ſame ſoil are cultivated exactly in the ſame manner, ſave, that one is manured at a large expence, the other not. To what degree does this manuring anſwer? Is the anſwer to this queſtion of no importance? Where is it to be gained, without exact accounts? This inſtance might be multiplied to ten thouſand, in not one of which

which would experience be clear and valuable, without a regular account.

It is the ſame with graſs lands; their products of all kinds; with every ſort of cattle. Twenty beaſts are annually fatted, that are kept the year through; and twenty milch cows are alſo kept: which pays the farmer the beſt? This is a point of no ſlight importance; for the difference may be very great: but is it to be known from that general account which every man carries in his head, which is nothing more than an idea? What accuracy can there be in accounts ſo kept?

The farmer ſtocks himſelf with two ſorts of ſheep, ewes and weathers; they are both fed alike: which anſwers beſt, and to what degree? Even this plain caſe can be reſolved with no degree of certainty, without a regular account being kept of each.

When

When a man turns over his books, and finds a regular balance of profit and loſs on every article, he is enabled to review his buſineſs, to conſider what have probably been his errors, and wherein he has been moſt ſucceſsful. The reſult of ſuch reflections is *true* experience, not the random notions that are carried in the memory. After ſome years farming, upon looking over his accounts, he finds that wheat has in general paid him very indifferently; and that, upon an average of all ſorts of treatment and ſeaſons, barley, on the contrary, has been attended in the like variety, with a conſiderable profit. Upon ſuch a review he finds that his dairy of cows pays him far better than his fatting beaſts: that his ewes and lambs are much more profitable than his weathers. He finds by the quantity of work performed by his horſe and ox teams, and the expence of each, that the latter

latter are more advantageous, as five to three. This knowledge is beyond all doubt the moſt valuable part of experience, and can no ways be gained but by regular accounts: for in what manner can ſuch a review of one's buſineſs be otherwiſe made? Will any one be ſo abſurd as to aſſert all, or any part accurately, can be carried from year to year, for four, five, ſix, or ſeven, in the head, and founded originally in nought but conjecture? Nor ſhould fugitive notes and memorandums be called *accounts*; nothing can effect this great end but a ledger regularly kept.

In this light ſurely accounts may be ſaid to be the foundation of good huſbandry; and highly poſſible to convert a bad farmer into a good one. It is by means of them that gentlemen, in one inſtance, have ſo great an advantage over common farmers, as to balance, in a good meaſure, all the ſuperiorities of the latter. It is by

by theſe means that gentlemen may, if they pleaſe, gain more experience in five years, than a common farmer can in twenty. Many of them give into unneceſſary expences; proſecute more experiments than their fortunes will admit; and bring themſelves, by degrees, and unknowingly of the amount, into a want of money. A man that keeps regular accounts may certainly do the ſame; but he muſt infallibly know how much he ſo expends, and be warned regularly of the danger; which are points of no ſlight importance.

It is, at preſent, a common thing to hear diſputes in converſation about gentlemen's profit by farming. Some, with great earneſtneſs, aſſert they make money by it; and others are as ſtrenuous in contradicting the poſſibility of it. When I hear theſe diſputes, I conclude, of courſe, that neither party know any thing at all of the matter; as twenty to one whether

ther accounts are regularly kept by any of them.

It may be ſaid that regular accounts would be too much trouble; but, on the contrary, nothing is ſo troubleſome as *irregular* accounts: and, as to none at all, I never yet met with any body that did not pretend to keep ſome. A very little thought would make any man perfectly acquainted with all the accounts a farmer can want. The ſubject is of importance enough to demand a little further conſideration.

The firſt book to be mentioned that a gentleman farmer ſhould open, is *A Minute Book*. This ſhould be a regular journal of all the tranſactions of the farm. The bailey ſhould keep this. The following is the form which I uſe.

June

June 21.

Three ploughs in *ſix acres*.

A pair of harrows, ditto, covering the turnep ſeed.

The froſty cow calved.

The waggon to *London* for aſhes.

22.

Four ploughs, half a journey in *eight acres*; the horſes then went to ——, for dung.

The black ſow pigged 9.

Begun to hand-hoe the carrots in *the three-acres* the ſecond time.

Sold five fat beaſts to the butcher; the price 43 *l.*

This will explain my meaning: there can be no tranſaction of any ſort but what ſhould be thus regiſter-

ed. I recommend the ſhort lines between each article, to keep the bailey from crouding his writing cloſe together. Thoſe kind of people will be ſo ſparing of paper, that it is difficult to read what they write.

Next comes the *Caſh Book*, to be balanced every Saturday night: this is only for a check upon the perſon who keeps it; and that the diſburſements and receipts may be regularly known. If a gentleman keeps his own books, it is not neceſſary.

The *Ledger* comes next; in which an account, debtor and creditor, is opened for every field, by name, in the farm; alſo for every article of live ſtock; one for wear and tear, &c. &c. &c. ſo as no money can be paid or received, no exchange of commodity made on the farm, without an account there being open for it. Two of them ſhould be kept; one the bailey ſhould poſt the caſh book into; that is, enter each article

ticle of caſh expended or received, in its proper account; and alſo to ſubſtitute for a Journal, the uſe of which book is too complex for a bailey to keep.

What I mean by this, is the carrying tranſactions that have an amount in value, without any money being paid or received, to their regular account. For inſtance: an account is opened in the Ledger for the *Six-acre graſs field*. On one ſide all the expences, and on the other the receipts for hay ſold: but, inſtead of ſelling this hay, ſuppoſe it delivered from the ſtack to the horſes, how is this to be carried to account? In regular book-keeping, a merchant would enter this in his Journal, *Horſes debtor to ſix acres graſs* for ſo much hay delivered; and then poſt the ſum to both accounts in the Ledger. But the gentleman farmer turns at once to the account of horſes in his Ledger, and writes on the debtor ſide,

To ſix acres graſs, ſo and ſo: and then, in the field account, on the creditor ſide, *By horſes*, ſo and ſo.

In a word, he ſkips the Journal, and, at the ſame time that he ſimplifies his account, keeps them perfectly regular.

All this I ſuppoſe to be done by the bailey; and all is ſo very plain, that any ingenious fellow would form a clear idea of it in half an hour. But the maſter ſhould keep the fair Ledger, in which he enters every thing in the ſame *manner* as in the other; but reduces them to diſtinct heads. In the firſt Ledger they ſtand in confuſion; many ſmall ſums of caſh, and parcels of hay, corn, &c. &c. delivered at different times: his buſineſs, therefore, is to throw them, at the end of the year, into one view, under diſtinct heads. For inſtance: he finds a corn field account, with a great number of ſums of caſh; and corn ſold, and ſome delivered at home

home for cattle. He conſolidates all the expences into a few totals thus :

Debtor——Six acres——Creditor

To caſh for expence of tillage	*l.* 8	*s.* 6	*d.* 0	By hogs for 30 quarters of barley deliver'd	*l.* 24	*s.* 0	*d.* 0
Ditto ſeed	3	0	0				
Ditto rent	6	0	0				
Ditto labour *(Excluſive of tillage)*	4	0	0	Loſs	7	7	6
Ditto manure	8	0	0				
Ditto ſundry ſmall articles	2	1	6				
	31	7	6		31	7	6

Now the advantage of having ſuch a view as this of every crop, is immenſe. By looking over the particulars

culars of the expences, he ſees which run the heavieſt, and knows, from thence, the proper channel, in the like caſes for the future, for his chief expence to flow in.

At the end of every year an account muſt be taken of all the ſtock; the implements of all kinds valued, and carried to the new year's account accordingly: and, as the article of *wear and tear* includes every thing relative to implements, the annual valuation will throw into that account the *decreaſe of value*, as well as articles of new expenditure. The ſame obſervation is applicable to the accounts of horſes and draught oxen, which being valued in that manner, give the expence of horſes, &c. declining in worth; an article that is never dreamed of in common; and yet the ſinking of a horſe's value is as much a part of the expence of tillage, as the reparation of a plough. By theſe general methods, a gentle-

man every year knows, to a ſhilling, the year's profit or loſs, and the ſum of money he has employed in agriculture.

And theſe numerous and very beneficial conſequences are reaped at ſo ſmall an expence of time and trouble, that it is amazing we do not oftner ſee the practice. The bailey's ſhare, which is much the moſt conſiderable, can never amount to half an hour in a day, if he writes a tolerable hand, and is the leaſt ready at accounts; and a bailey that is not theſe, is nothing: they are as requiſite to his office, as the knowing wheat from barley. The maſter's part of the buſineſs comes but once a year, and may be a week's eaſy employment; but the bailey may alſo do three-fourths of that, viz. the diviſion of the expences into diſtinct heads; but it muſt be under the gentleman's direction. Now can any one raiſe a doubt of the benefit re-

ſulting from this practice not anſwering far more than ſuch an expence! I think it is impoſſible, and that many do at preſent practiſe it, and that more will hereafter do it.

* * *

I ſhall, in the next place, take the liberty of offering a few remarks on the employment of ſervants and labourers, as far as it particularly concerns a gentleman farmer; which is a point of very great importance in the general œconomy of a farm.

If a gentleman keeps a bailey, ſervants are more profitable for all ſorts of team work, (except filling a cart) and taking care of cattle, than labourers, becauſe ſuch articles require a conſtant number of men to be abſolutely depended on; but I am in doubt about this point if no bailey is kept to ſee regularly to the hours and work of theſe ſervants: I am confident they will not obey the maſter even tolerably, unleſs for a month

month or two, perhaps, when they firſt enter into his ſervice. A farmer who *lives* with his men, and, perhaps, works with them, will always be much better obeyed. This point, I muſt own, has troubled me more than once; nor could I ever manage to be totally at eaſe reſpecting it. There is no part of farming ſo irkſome and provoking to a gentleman: he cannot take a walk or a ride without having proofs that every farmer around him has more work for his money than he has; and how to remedy it without a ſpirited active bailey I know not.

Scolding and threats, and high words, either produce ſuch impudence as no gentleman will bear; a revenge that will much injure him in cattle, crops, or ſome other point; or a deceitful conduct, that is pretending to do better in the thing in queſtion, but acting ten times worſe in ſome other reſpect. For inſtance:

you

you are troubled to get your fellows to plow as much in a day as they ought; after many words, you think you have gotten the day: but examine how it is plowed, perhaps not better than ſcratched over.

If, on the contrary, you try what a mild, eaſy behaviour will do, and take no notice of trifles, you will infallibly be impoſed upon in every particular; and your ſervants will ſoon learn to be impudent, and deſpiſe your authority: and I have had ſuch experience of numerous diſpoſitions among farming men, that I will venture to aſſert (miracles excepted) the impoſſibility of this not being the caſe.

I have often reflected on the different methods of a gentleman's managing his farming ſervants when his farm is too ſmall to afford a bailey, and I muſt own I could never fix on any conduct that was exempt from great objections. One management

is

is to give the head man ſo much per annum wages above the price of the country, and above what he agrees to take, that he may be under ſome *fear* of loſing his place: while a gentleman pays no more wages than the common farmer, he has not a ſufficient tye upon his men. But ſuch extra wages he muſt not be ſuffered to conſider in the ſtile of making him any thing verging towards a bailey, in ſlackening his work; he muſt, on the contrary, be told, on hiring, that his extra wages are given him for abſolute and implicit obedience.

Let us ſuppoſe a dialogue between the maſter and man upon this point of hiring. My readers will excuſe my dwelling on theſe minutiæ of a gentleman's management: thoſe who experience them, will either not call them trifles, or allow that trifles are of very great importance.

Maſter.

Maſter. You ſay you can plow, ſow, mow, make a ſtack, and underſtand cattle.

Man. Yes: I won't turn my back on any man for that work.

Maſter. And that ten guineas are the loweſt wages you will take.

Man. I can take no leſs. I can have it any where.

Maſter. Very well; you ſhall have ten guineas: but if you conſent to obey me in the moſt exact manner, without ever talking about cuſtoms, or what not, you ſhall have twelve guineas a year.

Man. O, yes, Sir, I'll obey you; certainly will, Sir.

Maſter. Suppoſe I order you to plow your land by moon-light?

Man. (Hums and haws) 'Cant ſay, Sir. I ne'er did work of that ſort.

Maſter. Nor ſhould I chooſe to have my land plowed in that manner; but if I give *an order* for my men, horſes,

horſes, and ploughs to go immediately to work, at twelve o'clock of a night, as dark as pitch, I would be obeyed without the leaſt pauſe or heſitation. You underſtand me: all I mean is this; whatever I order muſt be done without any reply, no talking of cuſtoms.—What quantity of land do you generally plow in a day?

Man. An acre.

Maſter. But my horſes oftener plow me five roods. At ſeed time, always an acre and half. But if I give the order for two acres, you muſt execute it well, and without heſitation.

Man. But how am I to take care of my horſes after plowing two acres?

Maſter. No matter if the horſes are not taken care of at all; that is my concern, not yours.—You ſee the conditions of my ſervice. I would not have you engage with me, unleſs you are abſolutely certain you can ſubmit to unlimited orders.

Not

Not a man, perhaps, in five would venture to engage: and of thoſe who do, many would think of the two guineas, more than the equivalent they were to give for it. But I do not mean that the gentleman ſhould ever order double the cuſtom of the country. He ſhould fix his eye on one acre for inſtance; but frighten the fellows, by talking of much more: but they ſhould every now and then receive orders as a teſt of their obedience: an acre and half a day, an acre and quarter, &c. &c. &c. and a ſharp eye kept on the manner in which it is performed. Something beneficial I believe might be done upon this principle; but, undoubtedly, the extra wages would be, with ſome ſervants, in a good meaſure waſted. The loſs, however, is too trifling not to be worth ſome years of trial; for two or three guineas a year is no conſideration compared with the difference of five or

ſix

ſix horſes performing a fair year's work, or but an indifferent one. If plowing, for inſtance, be calculated at four ſhillings per acre, the difference of a rood a day is two ſhillings in two ploughs, or thirty-ſix pounds a year, beſides the profit upon it, and the chances in favour of catching ſeaſons: and although the team is not employed always about plowing, or harrowing, yet in all works the difference is the ſame, and very great the amount. If forty ſhillings or three pounds can be ſpent, ſo as to gain fifty pounds, it certainly is ſufficient inducement to try; or even five-and-twenty.

Another method I have thought of, is to employ none but labourers; and have no kind of work but what is done by the piece. In Suffolk there is ſcarcely a ſpecies of employment that is not reduced to a common price. In this way the gentleman ſhould draw up a liſt of *every* kind

kind of work, and the prices he will give for each article; which ſhould be, if any thing, a little above the ſtandard. This paper ſhould be paſted up in the room where the labourers victual, or in ſome other common place, where it may be at any time ſeen. Theſe prices ſhould be accurate, and, in caſe of work not common, well conſidered, for they ſhould be never varied on any pretence whatever. All work that employed the teams ſhould have this proviſo, that the oxen ſhould be fed, and the horſes fed and cleaned into the bargain.

If any work occurred in which it was found that a price could not be fixed, in proportion to the manner in which it ſhould be performed, the gentleman, if he did not approve the offers of the men, ſhould hire others occaſionally to do ſuch work.

This method has many very great advantages, and ſome diſadvantages: of

of the latter, the principal would be the neceſſity of watching all their operations with a very ſtrict eye, to ſee that *well* doing was never ſacrificed to quick doing. Among the benefits may be reckoned the certainty of the teams paying well for the expence of keeping them; and I muſt remark that this is a principal object in huſbandry; for as matters are commonly managed by ſervants, the horſes of a farm eat up three-fourths of the produce. In the way which I now propoſe, there would be no fear of having them idle; they would be always employed, and every day's work would be a good one; a rood at leaſt, and half an acre many times, they would regularly plow more than any gentleman's horſes in the country. But in this management they ſhould in reaſon have a greater allowance of oats than common.

In dubious ſeaſons, particularly ſeed times, the advantages of this conduct would be immenſe, for every kind of work would be carried on as faſt as the maſter himſelf could wiſh; which is never the caſe, by many—many degrees in other ſyſtems. It is impoſſible, upon the whole, to determine which method would be moſt ſuitable in all places: for in ſome the firſt would be preferable, and in others the latter. The greateſt difficulty with the labourers would be in places where very few parts of country buſineſs are reduced by common practice to a price by the piece.

But whatever method of conducting the labour of a gentleman's farm was purſued, there are ſeveral means of ſmoothing difficulties, and introducing order and regularity into employments of all ſorts: and theſe are applicable to both large and ſmall farms, though more ſo to the former.

Among

Among other particulars of this ſort, I ſhould adviſe a gentleman to have all his working hands rung out and home by a bell. A large bell ſhould be fixed on the top of one of the buildings, which ſhould ring up the men of a morning, and out a ſecond time with their horſes harneſſed, themſelves mounted (the ſacks of ſeed, if ſowing time, ready) for the call to march forth to work. Whenever a field was finiſhed plowing, all ploughs, harrows, &c. ſhould be brought home; and when a new one was began, the ploughs, &c. ſhould alſo be on the ſledges ready with the men and horſes to follow, wherever the bailey leads them. If tillage is not the work, or only part of it, the other teams ſhould always be under the ſame management; they ſhould be in the waggons, carts, &c. ready to ſtart with the reſt. All that were not in order for the call ſhould be reprimanded, and a minute made of

it in the bailey's pocket-book (one kept for that purpoſe).

At a proper time, for inſtance, after eight or nine hours work, the bell ſhould be regularly rung again, to call them home from the fields; and no team ſuffered to come home on any pretence whatever till the bell rung, nor for any weather; becauſe if that required them to come home, the bell ſhould be rung accordingly. Some works will admit of a variation in this reſpect, in which caſe a boy ſhould be ſent to ſuch teams; but none ever ſuffered to leave work without a direct order, either by bell or otherwiſe. In caſe of any failing in this part of their duty, a minute, as before, to be made of it. About half an hour after, the bell ſhould ring again for dinner: and in an exact hour it ſhould ring them out *from* dinner.

In a conſiderable buſineſs it would much favour the general deſign of this

this regularity, if each team had a ſeparate ſet of implements aſſigned to it. For inſtance, each ſtable to hold four or ſix horſes, and each to have a ſhed adjoining for a waggon, two or three carts, three ploughs, and two pair of harrows. This would occaſion no extra expence of implements, for they ought undoubtedly to be in ſuch plenty, that all the teams may at any time be thrown to one ſort of work: if this is not the caſe, buſineſs will ſuffer often.

Once every quarter of a year the day's work ſhould be half abridged, to have a general review; but none of the men ſhould know of this day before the ringing of the bell which called them home ſo much before their time. As ſoon as arrived, an order ſhould be given to bring forth each ſet, his implements, their horſes harneſſed, their oxen yoaked, their ſpades, ſhovels, forks, &c. all num-

bered to the number of the team. All of them called for by a catalogue, and examined; deficiencies noted in the *black* book; the ſame with every thing out of order, or that carried any marks of careleſſneſs. The cattle attentively examined, to ſee that none were lame; that they were in good health; and that they looked well fed and cleaned; and, in all reſpects, as they ought. In the whole examination, every thing good and bad ſhould be minuted, and carried to each man's account, in the ſame manner as before mentioned, reſpecting the work. When the whole was finiſhed, the gentleman ſhould come out on horſeback, with ſome little parade, (and attended by any company that he might have with him) to make the occaſion ſomething ſolemn in the eyes of the people.

He ſhould draw up in front of the line of teams, and call on the bailey

ley to read over the account, beginning with *Team*, *No.* 1. As ſoon as every account was finiſhed, he ſhould give a little harangue (with much ſolemnity in accent and manner) of praiſe or condemnation, according to the merits of the caſe; and, if the former, order them a proper reward. For which purpoſe certain things ſhould be ready—ſuppoſe a parcel of new clothes of all ſorts, to be divided with a ſmall ſum of money to each man.

If, on the contrary, a man has been found faulty, he ſhould be reprimanded; and the great difference pointed out between a faithful ſervant who meets with his maſter's praiſe and rewards, and an idle or a careleſs one that receives his diſpleaſure.

In caſe the account of any of them has been very *black*, and that for more reviews than one, he ſhould

order him to be diſcharged on the ſpot, with marks of diſgrace.

To the firſt man of that *number*, which upon the laſt four annual reviews has moſt merit upon the whole, the moſt valuable reward ſhould be given, with ſome durable teſtimony, with his name engraven on it, and the occaſion. Some piece of houſehold furniture, or any thing better that could be contrived. And wherever particular merit was found, an advance of wages ſhould commence.

Some may think this a ſyſtem of trifling; but from obſervations I have in every reſpect made on the temper of theſe people, I have reaſon to be confident the effect would be very great. It would be abſurd to practiſe it in a ſmall buſineſs: but when from fifteen and twenty to an hundred ſervants are kept, it would give ſuch an air of novelty and livelineſs to the buſineſs,

that the fellows (ſome few excepted) would themſelves like it not a little. And the aſſigning implements to each team, and making the men anſwerable for their being always in good order, and the harneſs, &c. &c. the ſame, would keep all theſe matters in thorough repair: whereas, in the common courſe of buſineſs, work of importance frequently ſtands ſtill, that ſomething or other may be mended; a defect not diſcovered till juſt the moment the thing is wanted.

With reſpect to the horſes, the benefit of it would be of very great conſequence; for the men would have a great inducement to uſe them well, to be careful of lameing them, to keep clean and free from all diſtempers that ariſe from neglect. A maſter that thinks ſuch a point not of importance, knows but little of buſineſs.

This conduct would have a vaſtly greater effect than all the hard words

and

and ſcolding that could be given from one ſeven years end to another. Country-fellows are ſo accuſtomed to this ſort of correction, that they are abſolutely hardened to it. To be obeyed, ſome method muſt always be perſued that is new to them. Even the conduct I propoſe, would preſently grow a matter of cuſtom, and be unheeded, were it not for the rewards and puniſhments; the variety and ſubſtance of which would ever keep up the attention of the men; for a handſome preſent, and a riſe of wages, are ſuch ſtriking affairs in their eyes, that they would never be brought to diſreliſh the inſtitution.

Suppoſe a gentleman, who carries on a very conſiderable buſineſs, expended in this manner twenty or thirty pounds a year. A ſingle man coſts him above twenty pounds, and can he ſuppoſe that the difference between the ready obedience, the uncommon regularity thrown into every

every thing, the great quantity of extraordinary work performed, the unuſual order all his implements, harneſs, &c. are kept in, the ſecurity of his draught cattle from abuſe, and in being thoroughly taken care of; can he think, that the difference between theſe and many other articles and common management, are not of more importance than the work of one man? May I not ſay (in a conſiderable buſineſs) than that of five?

* * *

Another œconomical point in a gentleman's management, which I take to be of much conſequence, is to convert the product of his farm into as few articles of ſale as he can, conſiſtent with his profit.

A bailey has a greater opportunity of being a knave in buying and ſelling than in any other part of the buſineſs; for which reaſon that part of his employment ſhould be contracted

as much as poſſible. And if no bailey is employed, a gentleman will find it a diſagreeable part of his buſineſs; and, conſequently, the ſame reaſon for reducing it to as ſmall a compaſs as poſſible.

Wheat cannot be conſumed upon the farm, nor converted into any thing elſe; for this reaſon it muſt be ſold as other farmers do: not, however, in dribs of twenty ſacks at a time; to have twenty or thirty markets to go to, and as many bargains to make: but all laid up in a grainery, and as ſoon as the whole crop is threſhed, ſold by *one* ſample, and in *one* parcel. Which conduct would reduce the trouble of a gentleman's ſelling it himſelf, whether he had or had not a bailey, to a mere trifle. It would likewiſe be of ſome conſequence in the price; for wheat ſells, in general, better during the ſummer, than the winter. One cannot move one's length in matters of farming,

ing, without finding ſomething or other that requires money in plenty. The conduct now in queſtion is, undoubtedly, very beneficial; but, if the gentleman did not at firſt appropriate a ſufficient ſum of money to the purpoſe of huſbandry, he will find himſelf too much cramped for the want of it, to be able even to ſell his corn when moſt ſuitable. Nothing can go on as it ought, if a farmer is ever, for a ſingle hour, in want of an hundred pounds.

Of oats no more ſhould be ſown than wanted for the horſes.

Barley, peaſe and beans, ſhould all be appropriated to fatting hogs, which (manure conſidered) will pay better than ſelling them at market, all expences of carriage, &c. &c. &c. taken into the account, beſides the circumſtances of trouble, and taking the ſale out of the bailey's hands.

Potatoes ſhould be applied to the ſame uſe.

Carrots

Carrots may either be given to the hogs, or to any other ſort of cattle.

Natural and artificial graſſes, green and in hay, cabbages, turneps, &c. &c. are all convertible into beef and mutton. A dairy is much more complex; but if it proves more profitable than other cattle, convenience muſt in that, and other circumſtances, give way to profit.

There are two methods of ſelling cattle; both are attended with little trouble, nor is the bailey truſted in either. One is by driving them up to London for ſale by the ſaleman: the other, by advertiſing an auction twice a year; one about the middle or the latter end of April, for all ſorts of beaſts that have been fatted in the winter; hogs included. The other in autumn for ſuch as have been ſummer fatted.

There are many ſituations in which it is not profitable to drive to London; and others in which it is peculiarly

peculiarly ſo; one of theſe methods will ſuit every part of the kingdom. In caſe of the latter, in a few years, many butchers, &c. would depend on the auction, and regularly account on purchaſing at it. But, at all events, a gentleman ſhould abſolutely reject the low dirty way of making twenty or thirty different bargains with country butchers; an odious work for himſelf, and the greateſt ſource of villainy, when in the hands of a ſervant, that can be invented. The advantages of ſelling by auction are ſo many, that they will more than balance a lower price than ſeparate bargains would gain; for that leaves no bad debts, the money is all paid at once: there are no expences of driving, nor falling off in fleſh by it; and all ſorts of commodities are ſold, good, bad, and indifferent.

If cows are not kept for a dairy, all the products of a farm may be reduced

reduced to, 1. wheat; and 2. cattle: all the firſt ſold in one bargain, and the ſecond carried all to two accounts, a ſaleſman for hogs, and another for ſheep and beaſts; or ſold at two auctions: by which method, the gentleman's trouble is reduced almoſt to nothing, whether he has or has not a bailey. A ſimplicity in buſineſs is valuable of itſelf; for when products are of ſuch a great variety that they cannot be united in ſale, ſome trifling matter is for ever calling for that attention which ſhould be employed on matters of importance.

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Another point of ſome conſequence in a gentleman's œconomical management, is *houſe-keeping*, ſo far as it concerns the farm. Except in the greateſt houſes, where different tables are ſpread for different ranks of ſervants, all live in the ſame manner; and no gentleman ſhould imagine that

that farming will anſwer while the people that carry it on are fed in the ſame manner as family ſervants. This is another of thoſe points which, at firſt ſight, may by ſome be thought trivial, but is really of importance. When only one or two men are kept, the grievance is not worth noting (although the loſs, it ſhould ever be remembered, in moſt points is proportioned to the farm) but when many are employed, the caſe is very different.

In large farms, that employ from four or five ſervants, and upwards, it is certainly adviſeable to have a houſe kept ſeparately for them; any diſtinct office, for a kitchen; with chambers or rooms annexed, in which they may all be lodged and fed, under the directions of the bailey; with no intercourſe of any kind allowed between the family and them: whoever keeps many men, will find ſomething of this management highly requiſite. There

is no ſlight ſatisfaction in knowing exactly what every thing coſts one; and particularly ſo in farming, in which it is abſolutely requiſite, for the ſake of clear and exact accounts: but ſuch cannot be effected, if a family and farming men are mixed together; for in what manner can their board be calculated with tolerable accuracy?

* * *

I ſhall conclude this ſketch with a few remarks on the neceſſity of gentlemen's conducting their agricultute with ſpirit, if they would have it profitable; or if they would even have it truly amuſing. Let them manage in what manner they pleaſe, yet common farmers, who are not above working themſelves, will, in numerous caſes, have the advantage; it ſhould, therefore, be the gentleman's buſineſs to balance that advantage by others, which it is not probable

probable the farmer ſhould command.

He ought, above all other points, ſo to proportion his land to his money, that he may never be diſabled from practiſing, in all caſes, what he has reaſon to think is right.

He ſhould adopt the culture of ſuch profitable vegetables as are not common in huſbandry, if his ſoil is proper for them, which can ſcarcely be doubted.

Reſpecting all tillage crops, he ought to lay it down as an univerſal rule, that none ſhould ever be ſown or planted if the ſoil is not in *excellent* order to receive them; that he may enſure, as far as it is poſſible, good crops. He ought, at all events, to determine to keep conſtantly a great ſtock of cattle, in proportion to his farm, as a ſure fund of profit both in themſelves, and in the article of manuring. He ſhould adopt ſome

particular ſyſtem of conduct relative to labour and a bailey, that may obviate the great evils commonly reſulting from gentlemen's management in that point. He ſhould, on many accounts, reduce the products of his farm to as few articles of ſale as poſſible.

Theſe points, it ſhould be obſerved, are very applicable even to gentlemen who farm chiefly for amuſement; for if a farm be merely an experimental one, yet it is highly expedient to baniſh all confuſion, for I know of no diverſion that ariſes merely from a want of order. And let a man's fortune be ever ſo conſiderable, a certain degree of œconomy is neceſſary, even in pleaſure. If a gentleman, without any attention of this ſort, can try an hundred experiments annually, by means of a certain ſum he appropriates to agriculture; *with* proper management, that hundred may be doubled

doubled or trebled, and no extraordinary expence incurred: and theſe, I think, are matters well worth the attention of thoſe who practiſe huſbandry, whatever be their motive.

ESSAY VI.

Of the cheapeſt way of manuring land.

THERE are ſo very few farms ſituated on ſoils that are rich enough to need no manuring, that the enquiry what manure is cheapeſt, is certainly one of conſequence. It may be laid down almoſt as a maxim, that there is no farming without manure, and that in plenty too; for the difference is ſo very great between the crops from land that is in good heart,

and thoſe from a poor exhauſted ſoil, that the compariſon is almoſt beyond calculation. It ſhould never be forgotten that the expence of cultivation is the ſame upon the latter as the former. Plowing, harrowing, ſeed, ſowing, rolling, water-furrowing, reaping, harveſting, and carting, when theſe are the ſame upon a field that yields two quarters per acre, as upon another that yields five; what prodigiouſly ſuperior profit muſt ariſe from one, over what is received from the other!

But the neceſſity of thorough manuring may, in part, be gathered from the practice of all good huſbandmen, from the earlieſt account of time. Now, common farmers are in no circumſtance apt to be ſpirited, unleſs the profit has nothing equivocal in it; and we find them, throughout the kingdom, very anxious in procuring manure: however faulty and ſhort-ſighted they may be in

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ſome reſpects concerning its management, one cannot object to them a falſe idea of its importance; but a too great eagerneſs to gain the benefit of it in a number of ſucceſſive crops.

The grand diſpute, in this matter, is the method of procuring manure, the variations of which are extremely great; different almoſt in every ſituation. The preſent point is not, therefore, to treat of every practice, which would require a volume, but to ſketch them in general, with a few remarks on the means of ſupplying the capital articles, where they are not to be had.

Marle may be called the prince of manures; both for the degree of fertility which it occaſions, the time it laſts, and the lowneſs of the expence. In thoſe countries where it is moſt profitably uſed, a manuring with marle, that laſts good twenty years, coſts from fifty ſhillings to four pounds

four

four ſhillings, which is ſurpriſingly cheap. Suppoſing the price four pounds, it is juſt four ſhillings per acre per annum; which may be called one plowing a year. Now, let the writers on the New Huſbandry conſider this ſtate of the caſe, and reflect whether their ſyſtem of manuring be reaſonable or not. Monſieur Duhamel, or Monſieur du Chateauvieux, I forget which, adviſes the countryman, when he is about to manure his land, to calculate the expence of it, and lay out the ſum in tillage; aſſuring him that the latter will pay him much better than the former. Praiſing one part of good huſbandry in excluſion of another, is the abſurdity of thoſe only who give into the hypothetical rage of ſyſtem, which is alone ſufficient to darken and perplex the cleareſt minds.

Tillage and manure are both abſolutely neceſſary; and that, perhaps, in proportion to each other; for

for manure, from its vegetative power, makes the ſeeds of weeds to ſprout ſo quickly, that, unleſs excellent tillage be given, the ſoil can never be clean. But to think that one or two plowings annually can poſſibly equal the benefit of marle, is an evident abſurdity.

Clay is, I apprehend, in no reſpect equal to marle, except the *duration* of the benefit received from it: the degree of fertility it confers, is not comparable to that of marle; but a very good clay may certainly equal, and has been found to exceed an indifferent marle: the expence is the ſame.

Chalk is uſed in many parts of England with a ſucceſs equal to that of any marle under the ſun; but it is very obſervable, that wherever this manure is ſo very excellent, it is univerſally the fat, ſoft, ſoapy kind: quere, therefore, whether that ſort and marle be not the ſame thing un-

der different names? The expence of this manure varies like that of marle It laſts as long.

Lime, I apprehend, is the moſt common and general manure of any that is uſed in England. It is ſo much valued in many parts of the kingdom, that the farmers think no management will do without it: but it is very obſervable, that we experimentally know little of its real utility. The few trials that have been publiſhed on it, prove rather againſt it. It is ſaid to be much of that nature which is requiſite for aſſiſting the earth in yielding its fertility, but gives no increaſe. However, but little is well known concerning it: upon ſome ſoils there can be no doubt of its being exceedingly beneficial, particularly the black moory, peat-earths, and boggy lands: and this ſeems to prove the juſtneſs of the above-mentioned obſervation, for theſe ſoils certainly abound much in vegetative virtue,

virtue, but are greatly in want of being enabled to exert it. The expence of liming, in various parts, is ſo extremely different, that it is impoſſible even to ſketch any thing like a medium. It riſes from ten ſhillings to ten pounds. Lime no where laſts long; two or three years, and, in many places, only one, are the common duration of the benefit.

Dungs of all kinds are much affected, and with great reaſon, by the farmers. The general method is to fodder the ſtraw of the crop in a yard adjoining the barns, where all ſorts are collected together, forming a compoſt, the chief part of which is rotten ſtraw: the benefit every one finds from it is very great; but in the quantities commonly uſed, viz. from ten to thirty loads, the fertility it occaſions does not laſt long: it is a common notion that land ſhould be manured with it every three years; in ſome places four. The expence

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is difficult to calculate, as it *coſts* the farmer nothing but carriage, and perhaps turning over.

In the neighbourhood of many cities and towns, farmers buy all ſorts of ſtuff they can get; but this is by no means ſo general as it ought.

It is not my preſent buſineſs to give a complete catalogue of manures, I would only ſketch a few of the principal by way of a guide to direct in the conſideration of ſome that I ſhall propoſe. I therefore paſs over, without mention, a number that are not material in that light.

There are many ſituations that either cannot command marle, chalk, clay, lime; or they are upon ſuch ſoils as they do not agree with; in ſuch places, we generally ſee the farmers confine themſelves to their yard dung, or to the folding their ſheep, if it is the cuſtom of the country: unleſs they are near a town that affords

fords much manure, and it is common to purchaſe it.

Such a ſituation is unfavourable to huſbandry, and a good farmer ought to contrive ſome method or other for remedying ſuch an evil. The grand one which I ſhall in this caſe recommend, is the keeping a great ſtock of cattle, and the purchaſing as much ſtraw and ſtubble as poſſible: and this method of raiſing manure is, I am confident, the cheapeſt that can in many places be practiſed. But the general idea is very contrary, inſomuch that nothing is more common (and indeed the more favourable to ſuch cultivators as have the ſpirit to act differently) than to ſee the farmers *ſelling* their ſtraw to whoever will buy it. This certainly ſhews a very falſe notion, but I do not think it proves againſt the propoſition: for it is to be obſerved, that few farmers keep half the cattle they ought, and conſequently many of them

them cannot convert their ſtraw into manure with any profit, conſequently they are obliged to ſell it: and this is ſo often the caſe, that I doubt not but the practice is often thought the reſult of choice, when it is the mere effect of neceſſity. This is one of the many bleſſed effects of their overſtocking themſelves with land; until they cannot afford to buy cattle even to convert their own ſtraw into manure. There cannot be a more fatal error, or one that is more likely to end in a farmer's ruin. It is much like letting their flocks of ſheep out for their neighbours to fold at ſo much per week, which is practiſed in ſome places, and I doubt not but in others they ſell their yard dung.

A quantity of ſtraw turns with a good many cattle to much more dung than many would at firſt imagine. I have found, by experiment, that twenty-ſeven head of cattle will convert ſixty-five loads of ſtraw and hawlm

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(beſides what they eat of it) into about three hundred loads of dung.

Hawlm, or wheat ſtubble, ſold for ſix ſhillings or ſeven ſhillings a load, and ſtraw, at an average, of all ſorts and ſeaſons, at about twelve ſhillings. Each of the above ſixty-five loads made about three and one half of dung. Horſes well littered yield from twelve to ſeventeen loads of dung per horſe.

Five loads of ſtraw, and four of ſtubble, were converted by eighty-eight fat hogs into ninety loads of very rotten dung. But they had not litter enough; they would have made twelve or fifteen loads into manure. As it was, the ſtraw made ten loads for one. I have found in theſe, and other proportions, that the manure is excellent; but that from the hogs much the beſt.

Let us now calculate the expence of manuring in this manner. We muſt calculate that the cattle in the yard *eat* none of the ſtraw, becauſe

what they eat ſhould be carried to the account of their nouriſhment, and not that of manure: this matter will be ſtated plainly, if we calculate the dung as five to one. The loads of dung, cart loads of forty buſhels, and thoſe of ſtraw, large waggon loads.

One hundred loads of ſtraw will make five hundred of dung: the expences will be as follows.

	l.	*s.*	*d.*
100 loads of ſtraw, at 12*s.*	60	0	0
Carting 250 loads of ant or mole hills, turf, virgin-earth, * &c. &c. into farm-yard, at 3*d.* a load digging, or 5*s.* a ſcore, and 7*s.* a ſcore or day for the team, 12*s.* a ſcore	7	10	0
Carried over	67	10	0

* Chalk is excellent for this uſe; and marle better ſtill.

	l.	*s.*	*d.*
Brought over	67	10	0
Mixing 250 loads of earth with 500 of dung: 750, at 1*d.*	3	2	6
Re-carting the compoſt on to the land, and ſpreading it, at 3*s.* a ſcore or day, and 7*s.* the team	18	15	0
	£89	7	6

This is about 2*s.* 4*d.* per load, ſpread on the land: but it is obſervable, I have charged the teams at 1*s.* per horſe, carts, and man, which is what they may be hired for in moſt countries: and much beyond what they coſt the farmers. This circumſtance will near, if not quite, reduce it to 2*s.* per load; but whether it is called 2*s.* 2*s.* 2*d.* or 2*s.* 4*d.* is no great matter, for all are ſurpriſingly cheap. Twenty loads per acre of this com-

poſt come but to 2 *l.* and the benefit may certainly be calculated at four years duration in great heart. I ſhould chooſe to renew at the end of four years; but the land would, beyond a doubt, be perpetually on the increaſe of fertility. The expence is therefore ten ſhillings per acre per annum.

Marle was found to be 4 *s.* per acre for 20 years duration. At firſt ſight this may appear to be vaſtly cheaper than the dung; but nothing is more true than the contrary. For three years after marling, the benefit is not ſo conſiderable as when the marle is become well mixed with the ſoil. The firſt year it is nothing; the ſecond it begins to come into play; the third a benefit is found from it, though not equal to the fourth, fifth, &c. and the five laſt years of the twenty, the effect is nearly worn out. The ſoil may always be the better for it, but nothing comparable

parable the laſt five years to the preceding. It holds, therefore, in great vigour twelve years. This circumſtance adds not a little to the 4*s.* per acre. But farther:

It is to be much queſtioned whether marle, in its beſt ſtate, any where yields an increaſe of product equal to that which ſuch a manuring of dung, as I have mentioned, will occaſion. There are ſoils wherein it would undoubtedly beat the dung, if the latter was tried on the ſame; for inſtance, light ſands. But that compariſon would be uſeleſs; the dung is propoſed as a ſuccedaneum to thoſe manures which cannot be had in any plenty: that is, for the uſe of farmers who have neither marle, chalk, or lime, viz. thoſe in general who occupy loams and clays.

Upon *ſuch ſoils* five manurings of my dung compoſt, each 20 loads, or 100 in the 20 years, will, I am

confident, infinitely exceed the marle on any ſoil whatever. With proper management, of not croſs-cropping, ſuch a manuring will make a loam yield, upon an average of the 20 years, from five to ſix quarters per acre of all ſorts of corn: which marle will never near equal in the beſt 10 years of its 20. Land ſo manured with dung wants no other manuring; but the fineſt marled lands require every now and then a manuring of dung, aſhes, oil-cake, &c. &c. which, if it was added to the firſt expence, would raiſe it much; but the *benefit* is calculated on the ſuppoſition: indeed I know of no country where the farmers truſt ſolely to their marle. The ſheep fold is another inſtance of advantage they have, which the dunged ſoil is not ſuppoſed to enjoy, becauſe upon ſuch ſoils the farms are, in general, too ſmall for a fold.

It

It is from theſe conſiderations, or rather facts, that I venture to pronounce the method here propoſed to be cheaper than even marle, which has always been reckoned the cheapeſt of all manures. But there remains another way to calculate it: I before ſuppoſed ſtraw to be bought; but ſtubble is much cheaper, and to be had, in moſt places, in much greater quantities.

	l.	*s.*	*d.*
100 loads of ſtubble, at 7*s.*	35	0	0
Carting as before	7	10	0
Mixing ditto	3	2	6
Re-carting ditto	18	15	0
	£64	7	6

This does not amount to 1*s.* 9*d.* a load, notwithſtanding the teams are charged at a hiring price. A farmer, I am confident, would ma-

nage to reduce this to 1*s.* 6*d.* But whether he did or not, it is plain the expence of the manuring is vaſtly reduced from the preceding calculation; and, conſequently, the remarks made on that, are much ſtronger with reſpect to this caſe.

I ſhall, in the next place, calculate the expence when the manure is made by fatting of hogs.

	l.	*s.*	*d.*
100 loads of ſtubble, as before	35	0	0
Carting 500 loads of earth to the hog yard, as before	15	0	0
Mixing 1500 loads, at 1*d.*	6	5	0
Re-carting the compoſt on to the land, &c. as before	37	10	0
	£93	15	0

This

This is exactly 1*s.* 3*d.* per load, and the teams charged at the *hiring* price, as before. It is needleſs to remark, that the expence would, in practice, be much reduced. Twenty loads per acre of this excellent compoſt would coſt no more than 25*s.* I may fairly venture to pronounce it the cheapeſt of all methods of manuring land.

It is to be remarked, that where young ling, fern, brakes, &c. &c. are to be procured in large quantities, they may be in part ſubſtituted in the room of ſtubble: but the latter deſerves more account for its general plenty; and particularly as the method of converting it to any uſe is unknown, I apprehend, in three-fourths of the kingdom; in which parts the farmers would moſt readily ſell it by the acre extremely cheap: an opportunity almoſt invaluable to thoſe who have the ſenſe and penetration to purchaſe all they can; and is, beyond a doubt, the quickeſt, and cheapeſt,

cheapeſt, and beſt method of improving poor ſoils, and carrying good ones to the higheſt point of fertility.

But for executing plans of this ſort, great ſtocks of cattle are requiſite; hence the truth of the remark I have ſo often made, that without plenty of cattle there can be no good huſbandry. If a man comes to a farm much worn out and damaged by bad management, he ought certainly to convert the chief of it to producing cabbages, turneps, carrots, potatoes, &c. &c. and as faſt as he got any part of it by their means into good heart, to lay down large quantities with artificial graſſes; by which means he will be able to keep great ſtocks of cattle; and this again will enable him profitably to purchaſe ſtraw and ſtubble of his neighbours: a train of management that will inevitably bring all his farm into moſt excellent order

order and fertility; and whenever he thinks proper to ſow corn, enſure him from one acre, as much as his predeceſſors gained from ten.

The bringing manures from neighbouring cities and towns, is an excellent cuſtom; but, in reſpect of cheapneſs, is not to be named with that I have juſt ſketched. Two ſhillings and ſix-pence a cart load, or five ſhillings a waggon load, are common prices of dung, &c. &c. And for ſoot, aſhes, malt-duſt, woollen rags, bones, &c. the price is exceedingly high: it is true, the quantity of the latter ſpread on an acre is ſmall; but yet all of them are well known to be dear manures; and, at one mention, plainly more expenſive than thoſe which I have ſketched. Hog dung, clear of all mixture, may be had for 1*s.* 6*d.* a load, by buying ſtubble, and as good as for 2*s.* 6*d.* bought in a town; beſides all the expences of carriage.

From

From the conſiderations, therefore, which have occurred to me, as well as from my own practice, I have the greateſt reaſon to believe that buying ſtraw or ſtubble to litter great ſtocks of cattle, much the cheapeſt and moſt effectual way of manuring land.

ESSAY

ESSAY VII.

Of the comparative profit of cultivating different ſoils.

A Perſon that has a ſum of money to diſpoſe of, by throwing it into farming, has, ſurely, great reaſon to be very attentive to the ſoil on which he fixes; unleſs all ſoils, with equal management, are equally profitable; which can ſcarcely be conceived. I ſhall ſuppoſe, in the following enquiry, that the rent of every ſpecies of land is ſtrictly fair, on an average value.

The

The variations of the fair rent of arable land may be limited, I think, between 1*s.* per acre, and 30*s.* both which are, at leaſt, much in extremes; but, in a more common way, the variations riſe from 5*s.* to 20*s.*

Some peculiar ſpots may let for 2, 3, 4, or 5*l.* per acre; but to take in ſuch inſtances, would confound all the general utility of ſuch an enquiry as this.

It is neceſſary, when we ſpeak of the variations of produce, to ſuppoſe the huſbandry *good, in a common way*; and equally ſo on all ſoils. Let us now ſtate a compariſon between land at 5*s.* and land at 20*s.*

In a general way of ſpeaking, I know of no ſoils inclinable to ſtiffneſs, that is, loams or clays, but what will yield more than 5*s.* per acre rent. Lands that let ſo low, are ſands, or light heathy ſoils, and old improved moor lands. It will

will not be an unfair ſuppoſition, to ſtate the average produce of ſuch as follows.

Of wheat one quarter and a half: but this grain is very ſeldom ſown on ſuch, unleſs greatly improved.
Of rye two quarters.
Of barley two quarters.
Of oats two quarters and a half.
Of turneps, crops to the value of 20*s.*
Of clover and rey-graſs, ditto.

I ſuppoſe the management good; at leaſt ſuch as is called ſo among common farmers; but the ſoils not improved with any laſting expenſive manure, as ſuch improvement is always to be reckoned as rent.

The produce of arable land, of 20*s.* an acre rent, may be calculated as follows.

Of

Of wheat three quarters and a half.
Of barley five quarters.
Of oats ſix quarters.
Of beans five quarters.
Turneps 3*l.*
Clover 3*l.*

But the difference between the products of theſe ſoils will not appear in a clear light, unleſs we ſtate the expences and produce of each. I ſhall vary the prices of the operation of tillage, &c. wherever I think the difference of ſoil requires it.

Land of 5*s. per acre.*

Firſt year turneps.

	l.	*s.*	*d.*			
Rent	0	5	0			
Tythe and town charges, at 8*s.* in the pound	0	2	0	*l.*	*s.*	*d.*
				0	7	0
Carried over				0	7	0

	l.	s.	d.
Brought over	0	7	0
Four ploughings, at 3d.	0	12	0
Two harrowings	0	0	6
Seed	0	0	6
Sowing	0	0	3
Twice hand-hoeing	0	6	0
£1 6 3			

Second year barley.

Rent, &c.	0	7	0
Three ploughings	0	9	0
Two harrowings	0	0	6
Seed, four buſhels	0	8	0
Sowing	0	0	3
Mowing and harveſting	0	2	6
Threſhing two quarters, at 1s.	0	2	0
£1 9 3			

Third year clover, &c.

Rent, &c.	0	7	0
Seed and ſowing	0	5	0
Carried over	3	7	6

	l.	s.	d.
Brought over	3	7	6

Fourth year clover, &c.

Rent, &c.	0	7	0

Fifth year ditto.

Rent, &c.	0	7	0

Sixth year wheat.

Rent, &c.	0	7	0
One ploughing	0	3	0
Three harrowings	0	[illegible]	9
Seed	0	10	0
Sowing	0	0	3
Reaping and harvesting	0	6	0
Thrashing one quarter and half, at 2*s.*	0	3	0
	£1	18	3
	£5	19	9

PRO-

PRODUCE.

First year turneps.

	l.	*s.*	*d.*
Value	1	0	0

Second year barley.

Two quarters, at 16*s.*	1	12	0

Third year clover, &c.

Value	1	0	0

Fourth year ditto.

Value	1	0	0

Fifth year ditto.

Value	1	0	0

Sixth year wheat.

One quarter and a half, at 40*s.*	3	0	0
	£ 8	12	0
Expences	5	19	9
Profit in six years	2	12	3
Which is per acre per annum	0	8	8½

Land of 20*s.* per acre.

First year turneps.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Rent	1	0	0			
Tythe and town charges	0	8	0			
				1	8	0
Five ploughings, at 4*s.*				1	0	0
Three harrowings				0	1	0
Seed				0	0	6
Sowing				0	0	3
Twice hand-hoeing				0	7	0
	£ 2	16	9			

Second year barley.

Rent, &c.	1	8	0
Three ploughings	0	12	0
Three harrowings	0	1	0
Seed	0	8	0
Sowing	0	0	3
Mowing and harvesting	0	3	0
Carried over	5	9	0

	l.	*s.*	*d.*
Brought over	5	9	0
Water-furrowing	0	0	6
Thraſhing five quarters, at 1*s.*	0	5	0
£2 17 9			

Third year clover.

Rent, &c.	1	8	0
Seed	0	5	0
Sowing	0	0	3
£1 13 3			

Fourth year wheat.

Rent, &c.	1	8	0
One ploughing	0	4	0
Three harrowings	0	1	0
Seed	0	10	0
Sowing	0	0	3
Water-furrowing	0	0	9
Thiſtling	0	1	6
Reaping and harveſting	0	7	0
Thraſhing three quarters and a half, at 2*s.*	0	7	0
£2 19 6			
Carried over	10	7	3

	l.	*s.*	*d.*
Brought over	10	7	3

Fifth year beans.

Rent, &c.	1	8	0
Two ploughings	0	8	0
Seed two buſhels	0	8	0
Sowing	0	0	6
Twice hand-hoeing	0	12	0
Thrice horſe-hoeing	0	3	0
Reaping and harveſting	0	8	0
Thraſhing five quaters, at 1*s.*	0	5	0

£3 12 6

Sixth year oats.

Rent, &c.	1	8	0
One ploughing	0	4	0
Two harrowings	0	0	8
Seed four buſhels	0	6	0
Sowing	0	0	3
Mowing and harveſting	0	3	0
Thraſhing, at 1*s.*	0	6	0

£2 7 11

£16 7 8

PRO-

PRODUCE.

	l.	s.	d.
First year turneps.			
Value	3	0	0
Second year barley.			
Five quarters, at 16*s.*	4	0	0
Third year clover.			
Value	3	0	0
Fourth year wheat.			
Three quarters and a half, at 40*s.*	7	0	0
Fifth year beans.			
Five quarters, at 16*s.*	4	10	0
Sixth year oats.			
Six quarters, at 12*s.*	3	12	0
	£25	2	0
Expences	16	7	8
Profit in six years	8	14	4
Which is per acre per annum	1	9	0½

	l.	*s.*	*d.*
Profit by the land of 20*s.* per acre	1	9	$0\frac{1}{2}$
Ditto by that of 5*s.* per acre	0	8	$8\frac{1}{2}$
The former ſuperior by	1	0	4

This ſuperiority of the rich land is very great; and yet I believe, upon the whole, the account favours the poor land the moſt. No ſeaſons affect, in any conſiderable degree, the rich ſoil; whereas unfavourable ones often reduce the product of the other to nothing. Another circumſtance of very great conſequence is, that the good land from the beſt of farmers wants no extra improvement; whereas the poor ſoil will, by ſuch an one, be improved at a great expence. Farther, the latter cannot, by any human power, be made to equal the former: that is, the rich ſoil will for ever keep a-head

of the other, whatever equal ſums be expended upon them; and it is capable of being advanced (even proportionably) much farther than the other.

	l.	*s.*	*d.*
Profit per annum on 500 acres of arable land, at 20*s.*	726	0	0
Ditto the 5*s.*	217	13	4
£	508	6	8

Thus are there above five hundred pounds difference between farming 500 acres of land at 5*s.* an acre and 500 at 20*s.* So little ſhould we be deceived with the idea of land being *cheap*, becauſe the rent is *low*. The farmers have a proverb among them, which ſeems a very true one; *A man cannot pay too much for good land, nor too little for bad.*

Let us next ſketch an account of a middling ſoil, a loam or a wet clay

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clay of 10*s.* an acre: theſe kinds of land are extremely common in moſt parts of the kingdom; the red brick earth ſoils, the wet gravels, and chalks, many of the lime-ſtone ſoils, all let, upon average, at 10*s.* an acre, and bear much the ſame crops in point of value, I ſhould calculate them as follows.

Of wheat two quarters and a half.
Of barley three quarters (after a fallow.)
Of oats three quarters and a half (after a crop).
Of peaſe two quarters and a half.
Clover 2*l.*
Turneps 1*l.* 15*s.* on ſuch as are ſomewhat dry.

A common method in many tracts of country of managing theſe ſoils is, to throw them into thirds; one fallow, one wheat, and one barley, oats, and peaſe.

Another

Another courſe is in fifths; one fallow, one wheat, one barley, one clover, and one oats. As the latter is more favourable I think than the former, I ſhall ſuppoſe it the medium, and calculate it.

Firſt year fallow.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Rent	0	10	0			
Tythe and town charges	0	4	0			
				0	14	0
Five ploughings				1	0	0
Water-furrowing				0	0	6
	£1	14	6			

Second year barley.

Rent, &c.	0	14	0
One ploughing	0	4	0
Two harrowings	0	0	8
Seed	0	8	0
Sowing	0	0	3
Water-furrowing	0	0	6
Carried over	2	1	11

	l.	s.	d.
Brought over	3	1	11
Mowing and harvefting	0	3	0
Thrafhing three quarters and a half	0	3	6

£1 13 11

Third year clover.

Rent, &c.	0	14	0
Seed	0	5	0
Sowing	0	0	3

£0 19 3

Fourth year wheat.

Rent, &c.	0	14	0
One ploughing	0	4	0
Seed	0	10	0
Sowing	0	0	3
Three harrowings	0	1	0
Water-furrowing	0	0	9
Thiftling	0	1	6
Carried over	5	19	2

	l.	s.	d.
Brought over	5	19	2
Reaping and harvesting	0	7	0
Thrashing two quarters and a half	0	5	6
£2 3 6			

Fifth year oats.

Rent, &c.	0	14	0
Two ploughings	0	8	0
Two harrowings	0	0	8
Seed	0	6	0
Sowing	0	0	3
Mowing and harvesting	0	3	0
Thrashing	0	3	6
£1 15 5			
	£8	6	7

PRODUCE.

Second year barley.

Three quarters and a half, at 16s.	2	16	0
Carried over	2	16	0

	l.	s.	d.
Brought over	2	16	0
Third year clover.			
Value	2	0	0
Fourth year wheat.			
Two quarters and a half	5	0	0
Fifth year oats.			
Three quarters and a half	2	2	0
	11	18	0
Expences	8	6	7
Profit	£3	11	5
Which is per acre per annum	0	14	$3\frac{1}{4}$

If this calculation in any point fails, it is in the wheat crop. I know not whether it ſhould be two quarters or two quarters and a half; perhaps the former. That would reduce the profit to 2*l.* 11*s.* 5*d.* or per acre per annum 10*s.* $3\frac{1}{4}$*d.* however, to ſplit the

the difference, which will, I believe, be neareſt the mark, I ſhall call it 12*s.*

	l.	*s.*	*d.*
Annual profit on land of 20*s.* an acre	1	9	$0\frac{1}{2}$
Ditto on that of 10*s.*	0	12	0
Superiority of the former	0	17	$0\frac{1}{2}$
Annual profit of that of 10*s.*	0	12	0
Ditto on that of 5*s.*	0	8	$8\frac{1}{2}$
Superiority of the former	0	3	$3\frac{1}{2}$

Theſe proportions ſhew, that the point in queſtion is an important one, and much deſerves the attention of all who have the offer of farms on different ſoils, and are in doubt about which to accept. There is a common notion current, that it matters not what land a man occupies, provided the rent is fair; but this

this idea is a mere error, and cannot fail of leading thoſe who give ear to it into a dangerous miſtake. We find, by theſe calculations, that the profit is much the greateſt from the beſt land, notwithſtanding the greatneſs of the rent. Soils that are hired, merely with a view to improvement, are not taken into the account, becauſe the amount of the improvement muſt be divided into rent, which would be too complex and uncertain an affair: however, I may in general remark, that ſcarce any will be found ſo advantageous as rich land, whatever be the rent; unleſs it is ſome waſte tracts of land truly rich, which is let very cheap from being waſte. But ſuch inſtances are too particular to found general concluſions upon.

Having given this ſlight calculation of the profit of three kinds of land, I ſhall, inſtead of extending them to greater varieties, offer a few general remarks

marks on the ſubject, for it is by no means my intention to ſift each part of it to the bottom, and to examine and explain every particular relating to it: ſuch a taſk, however uſeful it might be, is too extenſive for the bounds of ſuch an eſſay as this. I would aim at exciting the curioſity of my readers, and prevent their ſuffering vulgar notions and common maxims being the rule of their conduct, without a ſtrict examination of their truth. In a word, my principal deſign in theſe ſketches, is to ſtart a few hints, and leave the reader to perſue, and adapt them to his particular uſe.

I began with explaining the idea I had of rent to be the commonly received fair terms uſual in a country. Now there are many ſoils that carry ſuch a rent, to the amount of from 9*s.* to 12*s.* per acre, that no one can deny being *worth* the ſum, becauſe they would, at any time, *let*

for it. I mean cold, hungry, flat, wet ſoils, of whatever they may be compoſed. The lower ſort of farmers fallow them for wheat, and then take a crop of oats, and fallow again; or uſe them in ſome ſuch unprofitable courſe, as all that can, without improvement, be made of them. Such ſoils I ſhould ſtrenuouſly adviſe any man from hiring, however low the rent may be, unleſs *for improvement*. It is impoſſible to calculate the produce of ſuch ſoils; ſcarce one ſeaſon in twenty ſuits them: in wet years they are nothing but mud, and yield nothing but weeds: in dry ones, they bake with the ſun after rain, ſo that the corn is bound into the ground; it is only middling years peculiarly favourable, that can permit theſe ſoils to bear a tolerable crop. Now ſuch lands, notwithſtanding the height of the rent, which ariſes chiefly from the ignorance of the neighbouring farmers,

mers, are ſo extremely perplexing to manage, ſo tedious in every operation, and ſo particularly *late*, that a man had better hang himſelf than have any thing to do with them.

The beſt ſoil I ſtated above, was of 20*s.* an acre; but I have known many tracts of country that would yield all the crops I there ſuppoſed, and let for 15*s.* or 16*s.* per acre; at which rent I need not remark they are particularly profitable.

It is a common notion, that great ſums of money are alone to be made by farming open heathy countries; dry ſoils that let very low, where a man has a great breadth of ground, as the farmers call it, for a little money. And this opinion ariſes from ſeeing generally great farms on ſuch ſoils, which can only be managed by people that have much money. Now great ſtocks are in all buſineſs attended with large profit,

and muſt be ſo, or they could not exiſt. Thus the cauſe is miſtaken for the effect. A man that is worth ten thouſand pounds makes much money by farming a poor ſoil; but does any one ſuppoſe he would not do the ſame by farming a rich one? It is the great ſtocks, not the ſoil, that occaſion ſuch great profit. If the compariſon is fairly made by a man with 500*l.* fixing on land *truly* worth 5*s.* per acre, neither more nor leſs, and another worth the ſame ſum, ſettling on a rich ſoil fairly worth 20*s.* neither more or leſs, and both equally good farmers for their reſpective ſoils, there cannot be the leaſt ſhadow of a doubt but the latter in ten years, or at any other period, will be worth treble the money of the former.

Rich ſoils are commonly worſe cultivated than poor ones, and, for this reaſon, they are oftener divided into

into ſmall farms. A little farmer is every where a bad huſbandman; he cannot afford to do well by his land: but a great one, having proportionably more money, we every where ſee to cultivate his ſoil better. The one keeps ſcarce any cattle; the other large ſtocks. Is it not therefore plain, that the common notion of the ſoil being good, will generally, among the common people, be the reſult, from large farmers being on it? We ſee this very ſtrong in the caſe of ſingle farms; they get a reputation among common farmers, almoſt entirely in proportion to the money made on them. If a man dies rich on a farm, that circumſtance will alone let it at an advanced rate. If two or three men have failed in another, nobody will hire it; but if, accidentally, a good manager takes it at a lower rent, and makes much money, it quickly comes into reputation.

Farmers do not enough conſider management and ſoil; they look only at the ſubſtance of thoſe upon it, which is extremely deceitful, for that is totally the effect of good management. An excellent farmer comes upon a miſerable ſoil, he grows rich; when he leaves his farm, an hundred fools are after it at once: he is ſucceeded by a ſloven that is ruined, who thought to grow rich by merely poſſeſſing the ſame farm that another had made his fortune upon, without conſidering the vaſt diſtance between their methods of cultivation.

The great object is, that induſtrious men, who practiſe a ſpirited and accurate huſbandry, ſhould well know the moſt profitable ſoil they can fix on. Wherever they live, they will be good farmers, and make money; but ſurely it ſhould be a great object with them to beſtow their attention where they will be

be beſt paid for it. And that any one may venture to aſſure himſelf is upon the beſt natural ſoils; the black, rich, crumbly, dry, ſound deep ſtapled clay, or ſtiff loam, the *putre ſolum*.

ESSAY VIII.

Of the management of the borders of arable fields.

THIS ſubject, like many others, may appear to be a matter of no great conſequence at firſt view; but, upon a nearer examination, it will be found to deſerve more attention than any writer upon agriculture has hitherto given it; for, to my preſent remembrance, I know not a page that ever was beſtowed on it.

There are ſeveral ways of manageing borders. *Firſt*, they are, in ſome

ſome countries, reduced by plowing into the very hedge, to nothing, but a mere ſtrip of briars and rubbiſh. *Secondly*, they are left of various breadths, from two yards to ſix, over-run with whatever ſpontaneous rubbiſh happens to ariſe; with heaps of old ditch earth about them, or holes, ſcars, and inequalities made by carting the ditch earth away. *Thirdly*, they are kept in order ſufficient for mowing the graſs on them, whenever the field is under corn, or feeding it when fallow. *Fourthly*, they are plowed up regularly, and kept, when the fields are under corn, planted with potatoes. *Fifthly*, they are dug away eighteen inches or two feet below the ſurface of the field, and carted on to the land, either alone, or mixed with dung.

There may be other methods practiſed in countries, of whoſe huſbandry I am ignorant; but I believe theſe are the chief.

The firſt way, that of plowing into the hedge, is open to many objections. A farmer cannot take a view of his corn for any purpoſe whatever, without riding or walking through it, which cannot be done without damaging it; and as there are generally many trees in hedges, the corn ſown under, or ſo near them, never pays for half the ſeed, or other expences; inſomuch, that there is not a more common ſight than large parcels of land around a field where the crop is quite ſickly, ſtinted and yellow, while the middle of the ſame field ſhall be in perfect health and vigour. That this is a pernicious practice, is evident from the very mention of it; nothing, I ſhould apprehend, could induce a farmer to it, but finding his borders in ſo bad a condition, that they would not pay for mowing, and leaving in graſs, and therefore thought it better to plow and

ſow

ſow them with corn: but the ſcantineſs and poverty of the crops, one would apprehend, ſufficient to open his eyes in a very few years. The contrary is, however, the caſe, for moſt of them perſiſt in, as well as begin the practice.

The ſecond method, or rather *confuſion*, the leaving the borders of different breadths, and over-run with whatever rubbiſh happens to ariſe, is a moſt execrable practice: if ſuch farmers were capable of calculating their loſs, I think they would avoid ſo ruinous a cuſtom. It is in part owing to ſtipulations in leaſes, which forbid their plowing up borders; ſo, as they cannot act like the firſt claſs of ſlovens, they are content to remain in a yet worſe predicament. Such borders contain, a whole farm taken together, many acres, which are thus left abſolutely unprofitable. They cannot, upon a low computation, be reckoned at

leſs

leſs than ſeven acres in one hundred, unleſs the fields are remarkable large: when they are ſmall, for inſtance, four, five, ſix, ſeven, or eight acred pieces, it amounts to much more. I know ſeveral farms where (ditches included) the unprofitable land has amounted to a fifth of the whole. What an immenſe loſs is this, and upon ſoils that let at from 10*s.* to 20*s.* per acre. Suppoſe it only ſeven acres in one hundred, it is a moſt infatuated conduct to pay rent and town charges, and tythe, if levied by the acre, for land which yields ſcarcely ſixpence return. Such a deduction from the quantity of profitable land raiſes the rent of the reſt prodigiouſly. There are many farmers who would reject a farm upon differing 1*s.* per acre in rent, who would immediately take another, wherein they ſhould, in this manner, tax *themſelves* 1*s.* 6*d.* or 2*s.*

Borders

Borders left in this ſlovenly manner, have all the diſadvantages of none at all; that is, of the error I mentioned firſt, the plowing cloſe to the hedge: for they are ſo over-run with hills, and ſo broken and unequal in the ſurface, or have ſo many briars about them, that a man can as well ride or walk on the top of a hedge as through them; ſo that with all this breadth of waſte ground, he has not the power of going round his corn, for whatever purpoſe he may want it, but muſt make a path through it as well as the firſt ſet I mentioned.

It may be thought that the ſpontaneous rubbiſh pays ſomething in firing; but ſuch produce is ſcarcely ſufficient to pay the cutting, for it chiefly conſiſts in briars and brambles, and ſuch ſtuff: and, indeed, the common practice of the farmers proves this, for not one in ten ever cuts them at all.

If

If it be aſked why they do not convert them into profitable land, one can only attribute the neglect to poverty or miſtaken œconomy. *Cutting* them up will not do, they muſt be grubbed up, holes muſt be filled, hills carted on to the land, then the whole well plowed, or, if there are many ſcattered trees, dug, and, perhaps, hay-ſeeds at laſt to be ſown. What an immenſe undertaking muſt all this appear to a man, who, for forty years, has never ſtirred out of a beaten track, but dreamt on in the ſleep of his forefathers! The work is much too great to be thought of.

The third way of managing borders, that of keeping them in order good enough for mowing when the fields are under corn or feeding, when fallowed, is an extreme good one, for, by means of ſuch neat huſband-like conduct, no land is loſt; the border pays as well as the reſt

reſt of the field: the farmer can at any time walk about his fields with pleaſure, and without any damage, except for about a month before the mowing, and then without doing any miſchief comparable to making paths through his corn; beſides, the ſeaſon of full-aged graſs is ſo ſhort, that the time is not of conſequence. The beauty of fields (I ſpeak to gentlemen) is much greater; and the whole buſineſs receives a convenience and agreeableneſs which are very pleaſing, at the ſame time that every point of profit is œconomically attended to.

The fourth method of planting the borders with potatoes, is by no means a deſpicable one; but the propriety of it depends, in a good meaſure, on the nature of the ſpot. It is moſt advantageous in newly grubbed-up borders, that have been for many years over-run with ſhrubby wood and other rubbiſh; ſuch land yielding

yielding very conſiderable crops, is applied, in this culture, to good profit; but at the ſame time I muſt be allowed to remark, that it ſhould only be conſidered as a preparation for laying them down to graſs, as a conſtant practice of it is not ſo eligible as even graſs walks round a field, that admit either feeding or mowing; beſides, the trouble of planting, &c. is too great to be executed effectually in any great extent by common farmers. This method is, however, infinitely beyond that of plowing every year to the hedge, and ſowing corn where none will be produced; or to the execrable practice of leaving the borders in the wild ſpontaneous ſtate, that of mere unprofitable land.

The fifth way, of digging the ſoil away to ſome depth, and carting it on to the land, is an excellent one,

and of very great utility in many reſpects. It muſt be remarked by all that concern themſelves in huſbandry, that the ſides of a field, called borders and head-lands, are, where no alteration has been made for many years, vaſtly higher than the level of the field; this is owing to the turning of the plough, which, in the courſe of a number of years, leaves a riſing of moulds that occaſions this inequality of ſurface. In fields that are not flat, another reaſon co-operates, which is, the waſhings of the higher parts accumulating with bad huſbandmen, and, by degrees, grow into high ridges of ſoil.

Theſe riſings of the border and headlands are very inconvenient, and occaſion much uſeleſs expence; for in all ſoils, at all inclining to wetneſs, double water-furrows muſt be made parallel even with the ditch, and at

but a little diſtance from it: this is totally owing to the artificial height of the land, which renders the ditch unable to perform its office of being the grand water-furrow to every field that has a deſcent. The uſe, therefore, of digging away theſe high lands is manifeſt, as the fields receive a thorough draining by means of the ditches; and, conſequently, no more water-furrows requiſite than what the general flatneſs of the land makes neceſſary. The quantity of earth that ariſes, and which, in unlevel fields, may, from its ſituation, be ſuppoſed particularly rich, is alſo very great; and, either mixed with dung, or carried on alone, proves a ſource of much rich manuring.

Of theſe methods, the keeping them ſmooth and under graſs, and the digging them away, are the beſt management: but I muſt pro-

poſe an union between theſe two, to form one complete; which is, that the whole border and head-land be dug quite away, and carted on to the land; and to ſuch a depth, that the water may every where (if the land has a deſcent) run into the ditch without obſtruction. After this they ſhould be laid down carefully to graſs, and ſo kept. If in the courſe of twenty or thirty years they riſe again from the cauſes I before mentioned, the operation ſhould be repeated.

This is a ſyſtem of managing borders which, I apprehend, will be found of no trifling uſe: a very conſiderable ſaving of land will be made, which, in other methods, is mere waſte. The fields will be much eaſier drained, and great quantities of excellent manure raiſed; all points of much importance. If the earth is mixed with

with dung, it will be ſo much the better.

A very little obſervation will, I apprehend, make theſe remarks ſufficiently evident, and ſhew the practices here recommended to be much ſuperior to the common ones among farmers.

ESSAY IX.

Of the New Huſbandry.

THERE is no trifling utility in conſidering an object in every light in which it can be placed. *The range of experiment*, is certainly the grand range of philoſophy: but in all enquiries ſomething is requiſite, even beyond individual experiments. It may be attended, perhaps, with ſome uſe to conſider the drill huſbandry, in the ſtile of reaſon, a little independent of particular

trials; but I ſhould remark, that I made no ſlight number of theſe particular trials; and that I am, in ſome reſpects, not the leſs qualified for offering mere *obſervations*.

If any misfortune attends the experiments made by individuals, it is the contraction of their conſequences. Suppoſe a gentleman amuſes himſelf with agriculture, and forms a great number of experiments, it is much to be queſtioned whether his trials are conducted on more than one kind of ſoil; perhaps two or three: but they are proſecuted under circumſtances, reſpecting ingenuity, penetration, courage, prudence, wealth, implements, ſenſible ſervants, &c. &c. which are abſolutely peculiar to the individual; perhaps the overturning one of theſe particulars deſtroys the whole ſet of experiments. A man, not poſſeſſed of *all* thoſe advantages, cannot form experiments of equal authority with another

another who amply poſſeſſes them. No trial can be made that is uſeleſs; but what a vaſt difference in the utility! In a word, the concluſions to be drawn from ſingle experiments, admit of infinite variety; and thoſe which are deduced from connected chains of them, with all their authority, prove no more than what concerns one ſoil, and, perhaps, given modes of culture.

It is very far from my meaning to hint any thing againſt the propriety, or even the neceſſity, of multiplying experiments: I am perfectly ſenſible that nothing can be ſubſtituted in their room; all the reaſoning upon earth, without them, would be of no avail; and they, in a certain variety, are ſufficient to give the force of abſolute fact to every point of natural philoſophy. All I would venture to inſinuate is, that general reaſoning and remarks may be of ſome uſe in thoſe points, which

experiment do not reach, which are numerous.

It is ſo many years ſince the firſt notion of ſowing corn, &c. in rows was firſt ſtarted, that writers do not even pretend to decide who was the inventor; but certain it is, that the uſe of the drill plough never made any progreſs worth mentioning, till Mr. Tull, perhaps *originally* (though not very likely in a man of his reading) *again invented it*. He practiſed it upon an extent of ground far beyond that of any perſon preceding him. His ſucceſs, unhappily, is not ſo clearly to be determined even in the minuteneſs of a voluminous work. That he was a prejudiced writer, no one can deny; for, from his work, one would be almoſt led to imagine the old huſbandry totally inadequate to the wants of mankind; and that the human ſpecies, notwithſtanding all the attention given

to

to cultivating the ſoil, muſt be in perpetual danger of ſtarving.

The ſpirit of drilling died with Mr. Tull, and was not again put in motion till within a few years; perhaps the diſpute between the value of the old and new methods never occaſioned half the enquiry it has done within theſe ten years. Several courſes of experiments have been publiſhed, and ſome of them very ingeniouſly conducted; but yet the point remains abſolutely in diſpute. If this mode of ſowing be really ſuperior to that in common uſe, why is it not more ſpiritedly promoted? What are the circumſtances that impede its progreſs? Theſe queſtions, though of importance, are not eaſily decided. Another, which is of equal conſequence, is, the effect of the drill culture *in general?*

A very little attention will diſcover the cauſes of the drill huſbandry making

making ſo ſlow a progreſs, even under the ſuppoſition of all the merit which the moſt ſanguine of its perſuers aſſert it to poſſeſs. In the firſt place, the principal reaſon, of all others, is the inſufficiency, real or imaginary, of all the drill ploughs, hitherto invented, in performing the complex offices which are requiſite in ſuch a machine. For, it is to be obſerved, the ploughs of this ſort which have been offered to the world, how much ſoever they may have been cried up by their inventors and particular friends, have been all as much depreciated by others. This, to men of ſenſe, ſpirit, and general knowledge, may be no matter, becauſe they no ſooner meet with difficulties, but they remove them; but to others, who creep on in a more humble ſtile, and who are neceſſarily ten times as numerous, beſides the whole body of *common* farmers, ſuch

difficulties

difficulties are either in reality or appearance inſurmountable.

The common plough varies prodigiouſly in different countries; but yet it every where agrees in the great points which farmers expect from it. There is ſome degree of complexity in the operations which it performs; and yet ſuch a ſimplicity, as to be with great eaſe familiar to the ſtupideſt country clown. It is every where ſtrong enough to bear the hardeſt uſage, firm and compact in all its parts, and every where to be repaired without trouble. The variations in the merit of ploughs are found in none of theſe points; only in deviations from mathematical principles, in the conſtruction reſpecting the ſtrength of the draught. If horſes or oxen enough are put to them, all ploughs anſwer their purpoſes; and hence the grand difference found in them lies in the number of

draught

draught cattle uſed, which varies in almoſt every county.

Suppoſe, on the contrary, that the common plough was ſo complex in its powers, as to render ſimplicity extremely difficult to be preſerved in its conſtruction; that the variety of its parts was ſo great, and had ſo little firmneſs and connection in them, as to render the whole machine unavoidably weak; that the ſame objections, which rendered it ſo complex and ſo weak, made it likewiſe difficult and expenſive to repair; without multiplying theſe ſuppoſitions to a tenth of the extent to which they might be carried, we may venture to determine, that huſbandry would be at once reduced to infancy, if the common plough remained under theſe three diſadvantages.

Now the drill plough is attended with many other diſadvantages, for it is of an high price, very difficult to procure, and, notwithſtanding the variety

variety invented, not one of ſuch particular excellency as to be allowed to exceed the reſt. In ſuch a ſituation, is it poſſible that drilling can flouriſh? Let us conſider the powers which a drill muſt poſſeſs, or the cultivator have more than one.

There is no reaſon to limit the number of rows ſown at a time; the experiments on this point by no means decide that two rows, with intervals, are better than four. I have myſelf found that three are better than two, in many inſtances; and, if drilling in equally diſtant rows be practiſed, the more ſown at a time, the cheaper and better it is. However, we will ſuppoſe the number to be three, and the diſtances from each to vary from ſix inches to two feet.

Various ſeeds require various depths of ſowing: turnep ſeed, lucerne, ſaintfoin, &c. &c. muſt not be thrown as deep into the earth as beans.

Hence

Hence the neceſſity of the drill's ſhedding the ſeed to various depths, from half an inch to five inches.

The mention of the above ſeeds reminds us of their ſize. The apparatus for ſowing turneps muſt be very different from that which drops beans, ſo that there muſt be varieties in the parts anſwerable to ſuch effects.

A coulter to each ſhare is requiſite to all drill ploughs; for, however fine the ſoil may be, yet little obſtructions will happen, which ſhould be thrown aſide, and not ſuffered to choak up the ſhares. It is alſo neceſſary to have a harrow, or harrows, or teeth, or ſome contrivance for covering the ſeeds, which ſhould alſo act in proportion to the depth at which the ſeed is to be laid into the ground.

Thus a drill plough muſt be able to ſow any kind of ſeed, from lucerne and turneps to beans. It muſt ſow one

one row; two rows at ſix inches aſunder; two rows at one foot aſunder; two rows at eighteen inches aſunder; two rows at two feet aſunder; three rows at ſix inches; three rows at twelve inches; three rows at eighteen inches. It muſt ſhed the ſeed in theſe varieties from half an inch to five inches deep. And the coulters and harrows muſt be contrived to vary with the diſtance and depth of the rows.

I will not ſay ſuch a machine *cannot* be invented, which is ſtrong enough for the countrymen's uſe, but I firmly believe the impoſſibility, without rendering it ſo heavy as to require ſeveral horſes to draw it; which, in a hurrying ſeed-time, is a very great objection. All the drill ploughs I have ſeen are ſo weak, that I am confident they would not live a week in conſtant uſe, to take the chance of the ſervants and labourers roughneſs, like the other ma-

chines of a farm. Common ploughs and harrows the fellows tumble about in ſo violent a manner, that, if they were not ſtrength itſelf, they would be perpetually dropping in pieces. In drawing ſuch inſtruments into the field, the men generally mount their horſes, and drag the things after them. In paſſing gateways, they ſeldom think of what is behind them; which, twenty to one, but they draw againſt the gate-poſt. It is, however, of little conſequence, for the implements are ſtrong enough to bear ſuch uſage: but ſuppoſe a drill plough treated in the ſame manner! where is one to be found, with half the powers that I have deſcribed, that would not be ſhattered in pieces?

In a word, if a drill be not ſtrong enough to bear all ſuch rough handling, it may at once be pronounced good for nothing. Whenever one is offered for examination, the firſt trial

I ſhould make of it, would be to whirl it againſt the ground with all the force I was maſter of. If it did not ſtand this, perfectly ſound, I ſhould at once pronounce it not worth a groat. Next, I would order my man to bring out a pair of horſes, and lead it through the farm, and, if chance did not wrench it againſt a gate-poſt, it ſhould receive the blow with deſign. Such a conduct might be thought at firſt to be the effect of prejudice, and a miſtaken idea; but I am confident that thoſe who have practiſed drilling upon any ſcale not very ſmall, and ever let their drill ploughs be uſed out of their ſight, muſt have *experienced* the neceſſity of ſuch an examination. It is equally neceſſary with the performance of any operation that is required: it may as well ſhed a buſhel of ſeed where it ſhould drop but a peck, as not to be ſtrong enough to bear ſuch treatment.

All the powers I above deſcribed are abſolutely requiſite to be poſſeſſed, in ſome machine or other, by thoſe who would practiſe drilling on an extenſive ſcale. If they cannot be compriſed in one, they muſt be divided, and no more given to one plough than is conſiſtent with a degree of ſtrength equal to that of the common plough: but this renders a ſet of drilling machines very expenſive, equal, at leaſt, to the ſum with which a labourer would ſtock a little farm. With ſuch expenſive implements, it would be no wonder that drilling ſhould not flouriſh.

I have not ſeen a drill plough that poſſeſſes the powers here deſcribed, without being weak to a degree of ridicule. The others I have viewed have been wanting in many material points; and *all* ſo weak, that with the common uſuage of farming implements, they would preſently be ſhattered to pieces.

It

It is much to be regretted, that the Society for the Encouragement of Arts, &c. have given over their premiums for a drill plough; it is a publick misfortune, if they think ſuch as are hitherto invented, anſwerable to the wiſhed-for end.

The drill ploughs yet diſcovered, are either much wanting in ſome neceſſary powers, or ſo weak and complex, as to be totally uſeleſs in a countryman's hands; and beſides, theſe objections are not only very expenſive, but, what is worſe, difficult to be procured. In ſuch a predicament, who can wonder that this mode of culture ſhould be yet very confined! It is much to be queſtioned, whether there are annually fifty acres of drilled corn in the whole iſland of Great-Britain. While the implements with which it is performed remain ſo extremely imperfect, it is impoſſible this huſbandry

ſhould ſpread; and let me remark, that no gentleman of ſmall fortune, who applies to agriculture as a trade, can, with any tolerable prudence, enter into a practice (on a large ſcale) the execution of which is ſo full of difficulties, and the profit ſo very equivocal. Small trials are equally uſeful to the publick, and much ſafer to the individual. But it is not the want of a good drill plough alone that prevents the progreſs of this mode of ſowing, other reaſons yet remain to be mentioned.

A method of culture, that will not do for a large extent of ground, is undoubtedly good for nothing, reſpecting general utility. Now there appears to be a difficulty in drilling, which, though I never practiſed it to near ſuch an extent, I think is an objection of no trifling conſequence. Suppoſe a man ſows annually two or three hundred acres of barley and oats, and that he is ſituated either in

a clay ſoil, or a ſtiff or moiſt loam. Now thoſe who are the leaſt acquainted with the nature of ſuch ſoils, muſt know that the beſt common huſbandry, hitherto diſcovered for them, is to ſow the ſpring corn upon a ſummer fallow on one earth; by which means they are able to take the advantage of the firſt dry ſeaſon in the ſpring to get their ſeed into the ground: this enſures an early ſowing, which is almoſt ſufficient to counterbalance every other advantage. The ſucceſs met with in this conduct, proves the juſtneſs of the practice; for, in many countries where this method is perſued, they gain, at an average, ſix, and even ſeven, quarters per acre of barley and oats.

Now let us conſider the application of the drill culture to ſuch a point. The ſoil, notwithſtanding the preceding ſummer fallow, is by no means in a ſtate for drilling upon

one earth, it muſt be ſtirred three times, conſequently three dry ſeaſons are requiſite inſtead of one. As far as reaſon can carry a man in matters of agriculture, this alone condemns the practice, without one further conſideration. He who gives his barley land three ſpring ploughings, muſt ſow late; and, upon wet ſoils, *very* late; which is the moſt pernicious of all evils. But farther:

The land, notwithſtanding the ploughings, muſt be well harrowed to prepare it for the drill; ſo that the mere ſowing requires a horſe, or, perhaps, two or three extraordinary; that is, it ſtops a plough when a good farmer would not let a pair of horſes at a guinea a day; and this only with one drill plough: but how many are requiſite for ſowing one or two hundred acres? The land muſt firſt receive its tillage, and then be drilled. Now, in many millions of acres, a very heavy ſhower of rain between

between thoſe operations, would render another ploughing and harrowing neceſſary, with time to dry. By midſummer the ſeed would be in the ground.

With any nice calculation, the delay occaſioned by the uſe of the drill plough might be reduced, on any given number of acres, to ſome exactneſs; but that is by no means requiſite, for accuracy in ſuch a point is uſeleſs, becauſe it depends on ſeaſons, not the minuteneſs of calculation. The great object in a ſpring ſowing, on ſuch ſoils, is to catch every dry time, and make the utmoſt uſe of it: a method that, at ſuch a critical moment, requires extraordinary ploughings, and harrowings, or delay in ſowing, is far inferior to every other, more compendious in its principles.

This criticalneſs of ſeaſon is a new proof of the neceſſity of excellent machines: if a drill plough was to fail

fail or break in the midſt of a dry barley ſowing, what delay and vexation!

I apprehend theſe ideas will appear improper only to thoſe who have no experience of the nature of wet ſoils. Such are abſolutely improper for drilling thoſe vegetables that require an early ſpring ſowing. However well ſuch land may have been ſummer fallowed, however dry it may have been laid up during the winter, yet in the ſpring it is found ſodden, and beaten down with winter rains; when plowed up (unleſs after a long and dry ſeaſon that has mellowed it as deep as the plough goes) it riſes in ſuch an unpulveriſed ſtate, that however fit it may be for harrowing in broadcaſt corn, either is not in a condition for a drill to work, or all the authors who have wrote on the New Huſbandry, require a much greater fineneſs of ſoil than is really neceſſary. I could never,

never, in the little experience I have had of drilling, find theſe unkindly ſoils fit for the drill plough with only one ſtirring. I have often fallowed land for barley during a year and half, and yet found that three ſpring ploughings were neceſſary to gain any degree of fineneſs; even a ſufficiency to make common farmers allow the ſoil was in order for clover ſeed. Nor could I ever get three earths given, and proper harrowings, &c. and ſow in April, unleſs ſome other part of the buſineſs was neglected. It will always be May before the barley is ſown. But I here ſpeak only of theſe cold, flat, wet ſoils. All this may appear very ſtrange to thoſe who have only farmed light, dry, ſound ſoils, that will admit ploughing all winter.

The utter impropriety of drilling ſuch wet ſoils in the ſpring, brings on the neceſſity of never drilling them with any thing but wheat, as they

they are too ſtiff and wet for the midſummer crop, turneps. And this neceſſity is open to many objections. In the firſt place, many of the later writers on the New Huſbandry aſſert, that this conſtant drilling with wheat is not ſo profitable as a change of crops; but whether it is or not, we certainly may pronounce it bad huſbandry to have all the corn of a farm to ſow at one ſeaſon; for although the autumn ſowing is by no means ſo tickliſh as that of ſpring, yet it would be extremely dangerous to have a great breadth of ground to drill at once; and the number of draught cattle muſt be extravagantly great, as nine-tenths of their year's work would be to execute in a month's time. It does not require much reaſoning to prove that ſuch a ſyſtem cannot poſſibly be equal to a variety of broad-caſt crops.

Another

Another circumſtance not to be overlooked, reſpecting the practice of the New Huſbandry, is the conſtant attention it requires: a farmer that ſows one hundred acres of broadcaſt wheat, as ſoon as the land is water-furrowed, locks up the fields, and has nothing more to do with them till harveſt; his attention is then employed about ſomething elſe, without being called back perpetually to crops which are never done with. The operations of ſowing and covering the ſeed in the broadcaſt method, are very compendious, much land is finiſhed in a little time, and no unuſual attention required; whereas, in the drill method, the farmer ſhould attend particularly to the drill plough, to ſee that nothing is out of order, (I am ſuppoſing an excellent plough invented); that no more or leſs ſeed be ſhed than is requiſite, and that the plough does not move on after it is empty.

empty. Whatever perfection the drill plough is carried to, he is an imprudent farmer that does not himſelf attend it conſtantly.

When the ſowing is finiſhed, the drilled fields, like the reſt, require to be well water-furrowed; but in this circumſtance, as in many others, a diſadvantage lies on the ſide of the corn in rows. Some writers recommend a horſe-hoeing to be given before the depth of the winter; others aſſert it to be better to delay it till the firſt dry ſeaſon in ſpring. Every horſe-hoeing almoſt fills up all the water-furrows, conſequently they muſt all be opened afreſh, which is an expence; and, what is worſe, an *attention* muſt be given to it, whatever other buſineſs requires the men. Now I have not, in any book of huſbandry that treats of the drill culture, met with this remark, or any hint concerning ſuch an operation in the regiſter of experiments

periments publiſhed, which looks as if the flat, wet ſoil had never been tried: for whatever way the ſeed is ſown on ſuch land, the crop will depend almoſt as much on the number, depth, and goodneſs of the water-furrows, as on the ſeed or ſoil itſelf; and in this point the expence on drilling is near double that of the broad-caſt crop, and in ſome inſtances nearly treble.

When the field is drilled and water-furrowed, then comes a ſucceſſion of labour, attention, and expence, until harveſt, in horſe-hoeings, hand-hoeings, and weedings, and this throughout the buſieſt time of the year, in hay-time and the turnep-hoeing ſeaſon. Now I readily grant that a crop may eaſily repay all labour of this ſort, and with good advantage, but yet the farmer muſt give uncommon attention to all theſe operations, which is a burden perhaps as great as the expence,

for

for the number of hands requiſite is very conſiderable, and they muſt be procured at all events; which is but another word for ſaying, that the trouble and expence of getting them are immenſe.

Turneps are very commonly cultivated, and univerſally hoed in ſeveral counties, by people who make it their particular buſineſs, holding to it even through harveſt time; and yet many a farmer that happens to ſow twenty acres more than uſual, finds the trouble of getting them well hoed in time, very great. And this univerſal with all articles of labour that employ the men only at particular ſeaſons, and not the year through; which circumſtance I take to be another objection to drilling ever becoming common.

That mode of conducting a farm requires, during ſummer, a moſt diſproportioned number of hands to thoſe employed in winter, infinitely beyond

beyond the diſproportion of the old huſbandry, which is but trifling. The vulgar complaints of a want of people in different parts of the kingdom, I take to be of no account, except for particular ſeaſons. Let a man's demand for hands be ever ſo great, provided it be for regular employment the year round, he will, I am confident, find no difficulty in ſatisfying it; but when, as with the drill culture, five times as many are requiſite in ſummer (the general time of a hurry in buſineſs) as are wanting in winter, the inevitable conſequence muſt be either the work's going undone, or the expence extravagant. The evil may not have been felt in the drilled crops that a gentleman amuſes himſelf with in his experiment field; but when they are multiplied to ſome hundreds of acres, the caſe is very different: both the inconvenience and the expence would then be extremely great.

There is one principle, real or imaginary, of the New Huſbandry, which appears to me to be particularly pernicious, and that is the idea of the inutility of manures; correſponding with it is the practice of drilling the land every year with wheat, a practice that has been warmly aſſerted to be ſuperior to all other methods of culture. I have endeavoured, in the preceding eſſays, to raiſe other ideas of the conſequence of manures, and to ſhew that the very foundation of all good huſbandry, is the keeping great ſtocks of cattle, for the ſake of raiſing a vaſt quantity of dung. Now the rejection of all this in drilling, I muſt conſider as a very abſurd phantaſy, rather than the clear effect of unprejudiced experience; a maxim of pernicious tendency, that can lead to nothing but error. However, it ſeems to have been coupled with the practice of ſucceſſive

ſive crops of wheat, with much art; for if a farm is ſo cultivated, from whence can manure ariſe? The quantity of ſtraw is a mere trifle from drilled corn; and ſtraw is a matter of great conſequence in the raiſing manure. I have more than once recommended the purchaſing a quantity of ſtraw or ſtubble, and to convert it into manure by large ſtocks of cattle fed on vegetables raiſed on purpoſe; but this ſyſtem of drilling wheat, baniſhes every thing of this ſort; and, I will venture to aſſert, will never be found, in any ſoil under heaven, equal to twenty ſpirited and judicious variations in the common huſbandry.

The capital crops of corn that in one year pay the expences of many, are only to be gained by means of rich manuring; and the peculiar benefit of ſuch huſbandry, is the vaſt profit attending the crops that yield

nothing but the food of cattle, which pay the farmer equally well, and, in many caſes, vaſtly better than the richeſt ones of corn: and in this huſbandry, every part of the farm being under crops of various ſorts, that require very different treatment, much fewer horſes or oxen are neceſſary for its culture, than if it was all under one grain; and, at the ſame time, the labour of ſuch a farm is ſo equally divided, that no more is wanting at one time of the year than another; conſequently there is always a certainty of labour, and at a fair price. I know not how to ſtrain my imagination ſo far, as to conceive greater benefits flowing from the contraries of theſe practices.

There appears, upon the whole, many reaſons for thinking that the New Huſbandry can never make any great progreſs; and alſo for ſuppoſing that there is no very great reaſon

ſon to wiſh it ſhould, eſpecially upon the ſyſtem of ſucceſſive crops of the ſame grain.

If, however, we reverſe the medal, and confine the drill culture to certain plants peculiarly adapted to it, we ſhall find much to commend; and in ſuch articles of cultivation may be included all crops in rows, although tranſplanted——to inſtance the following.

Beans ſucceed admirably in it, and excel the crops in the broad-caſt way prodigiouſly; and this I think is quite conſiſtent with reaſon, for the ſtalks are ſo ſtrong, that they are never beat down, nor even bent much, ſo that the horſe-hoeing is performed without any obſtruction, and with great effect. This vegetable is likewiſe of a ravenous nature, the roots very ſtrong and penetrating, ſo that banking them up, by plowing between the rows, increaſes the quantity of their food with a much

much greater effect than with tenderer and weaker vegetables, whoſe roots have not the like power of ſearching for and ſeizing their nouriſhment.

Turneps are likewiſe cultivated with much profit in the drill method; but we ſhould remark, not with ſuch ſuperiority over the broad-caſt mode, as with beans. There is reaſon to believe the broad-caſt will equal, and ſometimes even exceed the drills; but numerous experiments have not yet been laid before the publick, ſufficiently to decide this point in a clear manner. In grounds inclinable to moiſture, wherein it is an advantage to have the turneps in rows on the crowns of ridges, the drill method muſt far exceed the broad-caſt. The obſervations on the luxuriance of beans are applicable to this root, which renders it profitable to cultivate in rows.

Cabbages

Cabbages cannot be compared in promiſcuous culture, either to that of being drilled where they are to remain, or to being tranſplanted in rows. This is a much more ravenous and luxuriant feeder than either beans or turneps; it will grow to a ſize proportioned to the richneſs of the ſoil, and will ſucceed even in a dunghill: the vaſt ſtrength of the roots is admirably adapted to penetrate all around, and feed upon the freſh moulds thrown to them in horſe-hoeing. I have no conception that hand-hoeing can ever equal, to ſuch a vegetable, the power of horſe-hoeing.

I do not include carrots and parſnips in this liſt, becauſe there are no experiments extant of ſufficient authority to decide their being better in the drill method, than in the broad-caſt.

Lucerne, though cultivated in numerous methods to uncommon

profit, I apprehend will never be found (duration included) to anſwer in the broad-caſt mode, near ſo well as in drilling and tranſplanting. The accurate attention which is given to crops in rows, in clearing them moſt perfectly from weeds, and keeping the ſoil in a fine ſtate of pulverization, cannot fail of having great effects upon a vegetable ſo tender, and yet ſo luxuriant, as lucerne. No plant is more injured by weeds, and bad management in general; nor any that feeds with greater luxuriance, when managed with care and ſpirit.

Sainfoin, there is reaſon to believe, would repay as much attention as is given to lucerne; but it being a much hardier vegetable, it ſucceeds extremely well under common management, which has prevented its culture upon a more expenſive plan.

Theſe

Theſe vegetables, and perhaps a few others of which I have not had experience, there is little doubt will ſucceed better under the New Huſbandry than the Old; whereas wheat, barley, oats, and peaſe, are in their nature contrary, and have many circumſtances attending them which render drilling and horſe-hoeing inconvenient, and not of much uſe. And this ſhould moderate the fiery *excluſive* advocates for both, and induce them to allow, that becauſe drilling is in many caſes an admirable practice, that therefore it ought totally to be received, in excluſion of every thing common. Cultivating perennials in rows, and making drilled annuals, fallow crops, or a preparation for broad-caſt corn, ſeems to be much the moſt adviſeable conduct, as it anſwers moſt of the objections which lie againſt the drill, upon a very large ſcale. Not, however, that I preſumed to offer rea-

ſoning upon a point that experiment can alone determine, without one circumſtance to defend me;—ſuch a train of experiments as can be taken for a guide in conſidering the New Huſbandry at large, and ſuppoſed to be extended over a whole country, is not likely to be made ſoon; and as to thoſe which a gentleman may make for his amuſement, viz. ten or twenty acres, it is much eaſier to multiply the reſult upon paper to one thouſand acres, than to extend it in reality. Perhaps he drills ten acres of wheat, and finds it to yield ſuch a profit. Does it, therefore, follow that five hundred ſhould do the ſame? Nothing farther. In ten acres no inconveniences of labour may be met with, nor any extra horſes kept; but theſe circumſtances, in five hundred acres, would alone overturn, perhaps, half the profit. It is therefore in default of *experiment*, that I venture to

to offer *reaſoning*. And as I profeſs particularly to treat in this ſketch of œconomical matters, the idea I have ventured to explain, may, in that reſpect, be of no trifling utility to a young practitioner. Such a one will find the New Huſbandry reſtrained to the culture of ſome vegetables, of excellent profit; but enlarged, to include the total management of a farm, he would probably find it, if not his ruin, at leaſt extremely unprofitable.

ESSAY

ESSAY

ESSAY X.

Of Experimental Agriculture.

FORMING experiments in huſbandry is ſo much the taſte of the preſent age, that perhaps it may not be amiſs to offer a few remarks on the manner of conducting trials of this ſort; and to enquire how far they are conſiſtent with the œconomical management of a farm.

I ſhall in the firſt place venture to affim, that not one comparative experiment in fifty is of pure, literal, and genuine authority; and yet comparative

parative trials are, perhaps, the moſt uſeful of all. Suppoſe it be demanded which mode of ſowing barley, the drill, or the broad-caſt, be moſt beneficial? For this purpoſe, two ſpots of land of equal ſize, and of a moſt perfect quality in goodneſs, muſt be fixed on; the expoſure, neighbourhood of ditches, trees, &c. &c. muſt be the ſame in both; the preceding crop, the preparatory culture, and every other circumſtance. Now if the field be a large one, in all probability every one of theſe points will be unobſerved, and the articles of culture, ploughing, harrowing, mowing, &c. &c. be performed at different times, and, conſequently, the compariſon unfair: for a farmer muſt have a vaſt number of men and horſes indeed to carry on ſuch an experiment in large. For theſe, and a thouſand other reaſons, two roods of land would, in many ſoils, be a much better compariſon, than

two pieces each of twenty acres. And this circumſtance is extremely favourable to experimental huſbandry, as it greatly leſſens the trouble and expence.

If the degree of attention requiſite for the conduct of experiments be conſidered, I apprehend it will be found that no man, however large his fortune, can be ſuppoſed willing to beſtow the trouble and expence requiſite for carrying on numerous experiments in large. I could eaſily make it appear, from uncontrovertible calculations, that ten thouſand pounds a year might be expended, and with œconomy too, upon a ſpace of ground ſmall, beyond all common ideas, if totally thrown into experiments. It is therefore ſurely of conſequence, that a gentleman of ſmall fortune, who farms either for amuſement or profit, does not unthinkingly draw himſelf into much greater expences than he can afford.

If

If ſuch an one conducts his agriculture with a prudent circumſpection, he will confine his experiments to one field; or, if he has various ſoils, to ſeveral ſmall fields; and let his trials be all in ſmall; eſpecially upon ſuch matters as are either expenſive, or of dubious reſult; this will guard him from being drawn into more coſtly trials than he means to afford; and the ſatisfaction of having them very correct and ſpirited, will make ample amends for the ſmallneſs of the number. But he muſt not expect that any thing of this ſort, although upon a trifling ſcale of a few acres, can be conducted without a certain ſum, and that not an inconſiderable one, annually appropriated to it. For if the experiment field is to take the leavings of all regular expences, it is eaſy to gueſs in what manner the trials will be carried on.

If

If the experiments are numerous, and ſome of them of the expenſive ſort, an hundred pounds a year will not more than conduct thoſe of ſix or eight acres of land; in ſome circumſtances of number and kind, thoſe of ten acres, and, perhaps, of twelve; from which it is evident that experimenting is no trifling expence; and as no employment or buſineſs in the country is ſo truly amuſing, there certainly may be danger of a perſon, whoſe fortune is not conſiderable, running into a greater expence than he can afford; and there are no two things that abhor each other ſo much, as good huſbandry and bad œconomy.

Experiments, in any number, can ſcarcely prove of much ſatisfaction, unleſs a number of hands proportioned to ſuch employment be kept merely for it, and alſo horſes and ploughs, &c. for in catching ſeaſons, the experiments ought to have as

much attention as the reſt of the farm; but moſt people who are uſed to huſbandry, eſpecially ſuch as make it their buſineſs, will not ſpare from their grand crops, teams and men, when much wanted. A field of fifty or a hundred acres of barley, that is ſowing in a dubious ſeaſon, will be attended to much more than a parcel of experiments, by practical farmers; I mean who have an eye to profit; but, at the ſame time, the experiments on barley require as quick an attention to the ſeaſon, as a field ever ſo large, or elſe the trials will not be of that authority they ought; for this reaſon, it is much adviſeable to keep a plough ſacred to the experiment field, and a man or two, or as many as the extent of ground requires: by this means the expence of ſuch a field may be eaſily calculated, and the buſineſs of it carried on with due regularity and fairneſs. But whatever method is

perſued,

perſued, it is highly requiſite to perſons, whoſe fortunes are not conſiderable, to know their expences of this ſort, with ſome accuracy; for the nature of them will otherwiſe occaſion a greater increaſe than may be deſigned.

As far as a man's fortune will allow him to go, no amuſement in the world equals the forming and conducting experiments in agriculture; to thoſe, I mean, who have a taſte for rural matters; nor can any *buſineſs*, however important, exceed, in real utility, this *amuſement*. Experiments that are made with ſpirit and accuracy, are of incomparable value in every branch of natural philoſophy: thoſe of agriculture, which is the moſt uſeful of thoſe branches, muſt be particularly valuable. The variety that is to be thrown into trials of this ſort, is amazing; of ſuch extent, that many lives might be ſpent in no other em-

ployment, and yet leave millions of trials unthought of.

The moſt valuable diſcoveries that have been made in philoſophy and mechanics, have been the effect of chance; a leſſon, by the by, not a little humiliating to the human mind. It ſhould, however, be a ſpur to incite one to trials of every kind that fancy can imagine; as in the vaſt range of variations, ſome noble diſcoveries might poſſibly be made, that would prove of uncommon utility to the human ſpecies.

The mediocrity of the common product of wheat, for inſtance, is very ſurpriſing; for it has been found, by experiment, that crops, vaſt in compariſon of the general ones, may be raiſed. Mr. Yelverton's famous one of wheat, amounting to above twelve quarters per acre, ſhews what the ſurface of an acre is capable of yielding and ſupporting. Now it is ſurpriſing that

ſuch a fact has not excited various endeavours to extend the product of wheat, and other grain, by numerous trials, that in a great number ſome few might lead to diſcoveries of real importance.

To a man of true ſpirit, a thing's never having been, is no argument that it never ſhould be. No man breathing could conceive before the diſcovery of the mariner's compaſs, the exiſtence of ſuch a phenomenon. Sand and aſhes, &c. were in the world many thouſand years before the diſcovery of glaſs. Could Cæſar form an idea of a powder potent enough to reduce him and all his conquering legions, in an inſtant, to nothing, when he accidentally caſt his eye on ſome nitre and charcoal? Who will be ſo hardy as to aſſert, that yet greater wonders than any of theſe, are not exiſting unknown in every part of matter? We may daily tread on ſubſtances, which in

certain mixtures might riſe up in new worlds of wonder? Things ſurpaſſing the utmoſt extent of our capacity to conceive, may wait only for the hand of accident to be diſcovered to mankind. Who knows but there may, in the walk of agriculture, be compound manures powerful enough to give a fertility to the earth vaſtly greater than any thing we at preſent know of?

But without recurring to ſuch ſuppoſed diſcoveries, the common practice in many points much wants to be *known experimentally*, that any man may be able to declare preciſely in what degree it is valuable, and in what deficient; alſo the comparative value of different practices, riſing from the worſt of common management, to the higheſt perfection of modern improvements. The following ſubjects in agriculture are either totally unknown, or ſo imcompletely, as to ſatisfy no inquiſitive ſearch.

1. The

1. The comparative merit of the Old and New Huſbandry, in the culture of many plants, in ſeparate crops; and alſo in continued courſes of crops. This compariſon to be further divided into two methods practiſed in the utmoſt perfection; the Old Huſbandry, as commonly managed, and the New, without manure, but a change of crops.—The old, as commonly managed, and the new without manure, and no crop but wheat.

2. The broad-caſt huſbandry to be compared, in all its different ſtages of good and bad management, in ſingle crops, and alſo in continued courſes. The former in this, as well as in No. 1, ſhould riſe to a degree of perfection far beyond any thing commonly practiſed, both in trench-ploughing, and hand-hoeing, conſtantly repeated.

3. In what degree of merit are beans, peaſe, turneps, carrots, cab-

bages, and clover, to be ranked as fallow or preparatory crops? They ſhould all be compared, in every variation, and for every ſort of fallowing crop, with a direct ſummer fallow.

4. In what proportion and degree is manuring profitable? and how many crops does the profit laſt? This of every ſort of manure.

5. What is the proper quantity of corn, of all ſorts, to be ſown both in the old and new methods?

6. The comparative culture, in every mode, of the artificial graſſes, and their application to feeding and fattening all ſorts of cattle.

7. The invention of machines more uſeful than thoſe already employed in agriculture.

Theſe ſubjects might be infinitely multiplied, but the few here mentioned are ſufficient to ſhew, in a moment, that the moſt important objects

jects of experimental agriculture, are yet unknown or diſputed.

Moſt of theſe, and many hundreds of others, I inquired into with as much diligence as I was able, in a courſe of five years trials in Suffolk; where, in the compaſs of leſs than three hundred acres of land, I made ſome thouſands of experiments, immediately minuting moſt of them, and regiſtering above nineteen hundred. I have ſelected ſuch as are moſt uſeful, and ſhall lay them before the publick. But of what avail are the endeavours of one perſon, or indeed of ſeveral?——— Variety of ſoils, and views, require that all gentlemen who make agriculture their buſineſs or amuſement, ſhould regiſter their trials, and either publiſh them themſelves, or communicate them to others who will take that trouble.

It is inconceivable how much the world would be benefitted by ſuch a con-

conduct; all matters relative to rural œconomics, would receive a new face; every day would bring forth ſome valuable diſcovery, and every year that paſſed yield ſuch an increaſe of knowledge, as to point, and ſmooth the way to diſcoveries now unthought of.

ESSAY

ESSAY XI.

Of periodical Publications concerning Rural OEconomics.

I Have more than once ventured to mention, in theſe ſheets, the importance of publiſhing experiments and obſervations in huſbandry: a remark which will ſcarcely be denied. If the practice of all the branches of rural œconomy is of ſo much conſequence as I have ſtated, ſurely it is likewiſe of conſequence that every one may have the opportunity of knowing in what manner others have acted, whoſe ſituations have been ſimilar

ſimilar to our own. It is with much earneſtneſs that I have recommended to all gentlemen to regiſter and publiſh, or allow the publication of their experiments and remarks in agriculture; but many difficulties occur which prevent ſuch a conduct. The chief of theſe is the want of a periodical recepticle of ſuch intelligence.

Thouſands may have made trials and obſervations, which would figure well in a letter, or a ſlight eſſay, but which would require too much amplification to form a book, or even a pamphlet: beſides, ſuppoſing the matter ever ſo voluminous, many gentlemen would readily give the recital in a letter, without further trouble, that would never hear of a regular publication. Thus numerous experiments, and valuable remarks, may be perpetually loſt, for want of a proper vehicle to convey them to the public.

It

It may, perhaps, be replied, that ſuch a vehicle did exiſt, under the title of *Muſeum Ruſticum*, and that others now exiſt of the ſame kind. But a very few remarks will be ſufficient to prove, that none of them could or can ſupply the want, being upon a plan very different from what would be requiſite for ſuch a receptacle as I here mention.

The *Muſeum Ruſticum* was ſet on foot and publiſhed by no body knows who; that is, it was a bookſeller's job; nine parts in ten of the communications were from A. B. C. and D.: now this circumſtance would be alone ſufficient to deſtroy a much better work. The relation of experiments, without the addition of the author's name and place of abode, is not worth a groat; nor would many gentlemen appear among a parcel of fictitious letters, whoſe authority added nothing to the publication, and gained inſertion merely to make up the

the ſtipulated quantity. Contrary to all which, a work of this nature ſhould be publiſhed by an editor, who ſets his name to it, who appears anſwerable for all inſertions, and who can produce all the original letters he receives as his authorities; and this editor ſhould be perfectly well ſkilled in practical huſbandry.

If ever any letters were inſerted without a name, it ſhould be merely ſuch as pretended to nothing but general reaſonings, without any recitals of experience; and of theſe, the editor ſhould admit none but what were excellent. It would however be better ſtill to reject *all* anonymous ones.

To this it is objected, that the quantity of communications might not be ſufficient for the ſtated pamphlet; but in anſwer to that, no ſtated quantity or price ſhould, on any account, be fixed; for that is a ſure guide to vamping up a pamphlet for *profit*, not *utility*.

It

It ſhould be publiſhed monthly, and regularly; as all irregular publications are diſagreeable in many reſpects, and difficult to be well ſupplied with. The price ſhould vary, according to the quantity; from threepence, ſuppoſe to a ſhilling; or, accidentally, more. It need not ſtop for want of matter, becauſe the whole would be good for but little, if the editor could not, upon occaſion, ſupply an experimental eſſay, in quantity ſufficient for a three-penny number.

Another circumſtance obſervable in the *Muſeum Ruſticum* is, its diſcontinuance; by which thoſe gentlemen, who afforded it their correſpondence, have the honour of being the authors of what is little better than old almanacks. One great utility of ſuch a work, is the being able to trace the progreſs of improvement, both in agriculture at large, and in certain practices in particular,

lar, which would be extremely important and curious, in a long courſe of years: the volumes, however *old*, of a work that *continues*, are always at hand, and conſulted; but univerſal experience evinces, that periodical works, however good, when diſcontinued, ſink into abſolute oblivion.

For theſe reaſons, one requiſite of ſuch a work, is the *certainty* of its continuance; and that whether the publication is attended with loſs or profit; for as to works, the continuance of which depends on the profit of the bookſeller, it is an inſult to common ſenſe to aſk, or think of gentlemen's becoming correſpondents. The publication ſhould be by ſubſcription, and the profits of it (if any) be applied to raiſing a fund for carrying it on, in caſe of the purchaſers being too few to pay the expences: but if, as would be much the moſt probable, the ſale con-

continued ſo long conſiderable, as to leave no danger of this ſort; in ſuch caſe, the profit ſhould be applied in giving medals and premiums for deciſions on points of agriculture, founded on experiments, to be publiſhed in the work. In a word, *private* profit ſhould, in ſuch a work, be ſtruck entirely out of the queſtion; it ſhould totally give way to *publick* good.

It is very plain the *Muſeum Ruſticum* and other performances of that ſort, by no means come under this deſcription.

The riſe of ſuch a periodical publication as here deſcribed, could be diſputed, I apprehend, by none. It would be a ready and certain method of ſpreading huſbandry knowledge; and not only the continued ſeries of experiments on an extended ſcale, but every ſlighter effort of reaſon and experience would there find a way to the publick, and become of utility to thoſe who wanted information of

any kind. Every part of rural œconomy would, by degrees, be canvaſſed by men, whom the world would know to practiſe what they wrote. No ſubject could be handled in ſuch a manner, without being the better for it. Whoever was in any difficulty, or wanted any information or advice, might ſtate his caſe in ſuch a work one month, and expect a reply from ſome other correſpondent the next, who had either experienced the ſame ſituation, or had conſidered it with more than common attention. All remarkable events or occurrences in the practice of huſbandry would be communicated and duly regiſtered, eſcaping thereby the oblivion into which a News-paper falls, and the imputation of falſhood and romance, which naturally lies againſt all anonymous information. In a word, ſuch a work would be a regular receptacle of uſeful knowledge in huſbandry; from which any young beginner might, in a few years, learn more

more than from all the volumes written on the ſubject ſince the world began: for no article would be contained in it that had not the ſtamp of experience, nor that was not of ſufficient merit to be accompanied by the writer's name. It is amazing that a ſociety of gentlemen, known to each other and the world, have never attempted any thing of this ſort. The difficulties at firſt, it is true, would be great; but time, perſeverance, and perfect diſintereſtedneſs, would certainly overcome them all.

Some works have pretended to this utility: but they have embraced other and more extenſive deſigns: ſome are anonymous, others are trifling, and *all* the jobs of bookſellers, who decide their fate and their duration. What can be expected from ſuch?

APPENDIX;

CONTAINING

The Rural Socrates,

With explanatory Notes.

APPENDIX;

CONTAINING

The Rural Sources,

With explanatory Notes.

INTRODUCTION.

SOME time ſince I drew up the preceding eſſays, I met with a ſmall work in the French language, entitled *Le Socrate Ruſtique.* I peruſed it with great pleaſure; ſurpriſed that ſo uncommon a relation ſhould not have attracted the attention of thoſe gentlemen, who read the modern French authors, with a view to diſcover thoſe that promiſe beſt for tranſlating: but by not ſeeing this ruſtick philoſopher in an Engliſh dreſs, I apprehend the work is not included in that number. The merit and undoubted utility of it have determined me to procure a tranſlation, that the publick might not be deprived of the loſs of ſuch an example, from the concurrence of thoſe common circumſtances, which generally decide the neglect of foreign books, when deſerving of attention; ſuch as an improper taſte (relative to *uſe*) in tranſlators, or the ideas of bookſellers, concerning their profit.

The work is peculiarly connected with the general caſt of the preceding ſubjects, viz. the œconomical management of a farm; it enlarges on ſome of them, and preſents other ideas, of indiſputable uſe. Several parts of conduct, which I have omitted, are here enlarged upon; and the whole is the real management of a Swiſs farmer now living. It is the hiſtory of his practice, and diſplays an example, not only of

œconomy, induſtry, ſobriety, and every domeſtick virtue, but alſo of moſt ſpirited huſbandry, much more correct and accurate than moſt of our Britiſh farmers can boaſt. It diſplays a poor peaſant, coming to a ſmall farm overwhelmed with mortgages, practiſing ſo animated an agriculture, as not only to gain enough to diſcharge his incumberances, but to purchaſe more land, and to cultivate the whole with unremitted diligence and neatneſs. I ſhould think myſelf very unhappy, were I to trouble the publick with a trifling or a worthleſs book; but to the farming reader, or to thoſe who can be intereſted with the memoirs of an honeſt induſtry, I flatter myſelf this little work will not be unacceptable *.

It has been received with uncommon pleaſure in Switzerland and France.

The notes I have added, are marked at the end with an aſteriſk.

* It was written originally in German. This tranſlation is from the French one.

In works of imagination, this would be an objection (though often practiſed); but in a relation of this ſort, the caſe is very different.

THE

THE

RURAL SOCRATES:

Or, A Deſcription of the

Oeconomical and moral Conduct

OF A

Country Philoſopher.

Written in GERMAN by

M. HIRZEL,

Preſident of the Phyſical Society at *Zurich*.

SECOND EDITION,
1764.

Majores noſtri virum bonum cum laudabant, bonum agricolam bonumque colonum. Ampliſſime laudari exiſtimabatur qui ita laudabatur. CATO.

THE

RURAL SOCRATES:

OR, A Delineation of the

Oeconomical and moral Conduct

OF A

Country Philosopher.

Written in GERMAN by

M. H I R Z E L,

President of the Physical Society at Zurich.

SECOND EDITION.

1769.

Le Socrate Ruſtique:

OR, THE

RURAL SOCRATES.

IT is no longer a controvertible point, whether the ſcience of agriculture merits the diſtinguſhed attention of philoſophical minds, and is the proper ſtudy of the moſt enlarged underſtanding; ſince the proof is beyond contradiction, that a judicious rural œconomy is one of the chief ſupports of the proſperity of a ſtate. We every day ſee inſtances in common life, where the happieſt diſpoſition, moſt informed genius, ſuperior talents, ſcientifick knowledge, even probity and virtue, become uſeleſs, and are loſt in the wreck of their poſſeſſor's fortune, if he omits to regulate his domeſtick affairs by the rules of a wiſe and prudent œconomy. The ſame obſervation may be extended to the wiſeſt ſyſtems of legiſlature, and the beſt political inſtitutions, which loſe their efficacy, and are incapable of defending a ſtate from abſolute ruin, unleſs a general ſcheme of œconomy, ſenſibly executed, provides for the ſubſiſtence of the people; either by finding within itſelf thoſe productions requiſite to the ſupport of individuals, or exciting a ſpirit of induſtry to exchange with foreign nations the produce of manufactories, for the neceſſaries of life.

life. There is ſomething ſo ſeducing to the imagination in this laſt method, that there is danger of ſuffering ourſelves to be deceived, in giving it a preference to the former. Through the medium of commerce, manufactures invite into the country, where they flouriſh, not only the neceſſaries of life, but every ſuperfluity of wealth and luxury. However parſimonious the hand of nature may have been to ſuch a country, it ſoon becomes more affluent than the moſt fertile ſoils, and increaſes in power and population almoſt miraculouſly. Yet, if agriculture remains neglected, all theſe advantages will be fluctuating and uncertain: whilſt, on the contrary, where that is conſidered as the firſt object of national attention, it conducts directly and invariably to the end deſired, without expoſing us to the caprice of fortune. A ſtate, that amply produces the ſuſtenance of its inhabitants from its own bowels, has, at leaſt, the advantage of independency; whilſt the richeſt nation, when obliged to have recourſe to the aſſiſtance of foreigners for the neceſſaries of life, ſubmits to all the viciſſitudes of unforeſeen events; and, in many inſtances, muſt be ſubſervient to the cordial or unfriendly diſpoſition of its neighbours.

Switzerland is peculiarly happy in the favour of divine providence. The bleſſing of uninterrupted peace, for ſome centuries paſt, has been attended with the tranquil enjoyment of the ſweets of liberty. Arts and ſciences flouriſh on her mountains; leading in their train, wealth, plenty, and contentment. Population increaſes conſiderably, and the invention of new employments for the labourer and mechanick, augments their number in the ſame proportion. Commerce and manufactures, extended ſo conſiderably, have opened an infinite number of channels for the conveyance of that wealth which flows from all parts of the globe. Yet, in the midſt of all theſe advantages, a ſcarcity of the neceſſaries of life has been more than

once

once experienced in a ſoil truly rugged and ungrateful to culture. Nor have its perplexities been much leſs when the devaſtations of war in the German provinces, contiguous to its republicks, made every moment horrid with alarming apprehenſions of ſeeing thoſe granaries, open at all times to our wants, ſhut for ever againſt us! In ſituations like theſe, when the poſſibility no longer exiſts of purchaſing proviſions for money, or at leaſt, when the difficulties attending it are almoſt inſurmountable, riches become uſeleſs, proſperity is no more, peace, liberty, juſtice, bleſſings ſo ineſtimable to humanity, are incapable of diſpenſing their benevolent influence to a people ſinking under the miſeries of famine; reduced to the cruel neceſſity of flying to other countries, in ſearch of a leſs precarious ſubſiſtence, and of exchanging the noble and invaluable gift of freedom, for the deteſtably debaſing ſhackles of ſlavery!

Such conſiderations frequently filled my ſoul with the moſt heavy inquietude; particularly when I connected them with the univerſally prevailing prejudice, that the lands of Switzerland were incapable of improvement. I looked round, and ſaw only here and there a ſingle ſpot that ſeemed adapted to cultivation; the reſt of the proſpect preſented a barren ſtony ſoil, or a clay ſo ſtrong as to afford a crop too poor to indemnify the farmer for his labour. The only reflection that gave me any comfort was, that this prejudice, like many others, might, from cuſtom and tradition, have uſurped a right in the liſt of eſtabliſhed truths. I immediately formed a reſolution to diveſt myſelf of all previous prepoſſeſſions, and be convinced by experimental demonſtration, of the reality or falſhood of the fact. I took all proper opportunities to gain information of the true ſtate of agriculture in the different cantons; acquired an exact knowledge of the various kinds of paſture and arable lands; of the real proportion between their rents and produce; of the

the breed and number of cattle in each diſtrict. The reſult of theſe inquiries terminated in a conviction, that this evident want of fertility, was rather to be attributed to the decay and neglect of agriculture, than to the ſterility of the earth. How are we otherwiſe to account for the variation of rent in eſtates, where the ſoil was naturally the ſame, ſituate in the ſame pariſh, and adjacent to each other? A variation ſo remarkable, that a farm of a hundred acres is ſometimes lett for more than one of a thouſand; and the produce very nearly anſwers that proportion. Or how elſe ſhould it happen, that the ſame ground riſes or falls in value, ſo conſiderably, at different periods? I have ſeen ſome eſtates ſold for a third leſs than had been given for them twenty years before; and others, whoſe purchaſe has advanced, in my time, to ten times this eſtimation, fifty years back (1).

The different degrees of care and ſkilfulneſs in the occupiers of theſe eſtates, may very probably be the efficient cauſe of this variation; and I am apt to believe, it depends on our own diligence and induſtry, whether we will double the fertility of our lands, and by that means relieve ourſelves from the ſtate of dependency, under which we have hitherto lived. The proper methods of manuring, correſpondent to the nature of the ſoil, are all that ſeem neceſſary for the completion of ſo ſalutary a work. The practicability of which is, from theſe inſtances, indiſputably evident. A ſtrong motive for endeavouring to attain this ſecret was, the facility of communicating it to a ſociety of true patriots, who have made improvements in

(1) A general officer of character, who commanded in Franche Comté, mentioned to me two eſtates in that province: the leaſe of one, within the preſent century, was 120,000 livres, which is now raiſed to 360,000; the other, farmed much about the ſame time at 180,000 livres, is now lowered to 44,000.

huſ-

huſbandry, one of the principal objects of their enquiry.

But is it not preſumption to flatter myſelf they will pay any deference to my opinion in a point of ſo great importance? May it not be objected, that I am acting in a ſphere ill calculated for my capacity; and that, by neglecting the proper objects of my ſtudy, I hazard the world's approbation, on a ſubject foreign to my profeſſion? Will it not be alledged, that improvements in agriculture require a ſhare of experimental knowledge I muſt be utterly deficient in, ſince I am not maſter of a ſingle acre of land; and the practice of phyſick does not admit of leiſure for an accurate inveſtigation of the methods of culture practiſed by judicious farmers, either by ſurveying the progreſs of their huſbandry, or collecting hints from their converſation? To obviate theſe objections, I ſhould firſt explain ſome particulars to the world. In the firſt place, I engaged in this undertaking, from no other motive than a ſincere and upright intention of encouraging and ſtimulating ſuch of my countrymen, who are able to penetrate deeper into the ſubject, and have more leiſure to purſue what is ſo eſſentially neceſſary to the welfare of Switzerland. Secondly, I ſhould confeſs that the practical part of huſbandry made the favourite amuſement of the early part of my days. I reſided in the abbey of Cappel from my ninth to my ſixteenth year; the age, of all others, when the mind is ſuſceptible of laſting impreſſions. The king had appointed my father intendant of the abbey. So extenſive a tract of land, farmed under my obſervation, furniſhed me with innumerable opportunities for enlarging and completing my acquaintance with the various branches belonging to the cultivation of land, and the breed and increaſe of cattle. I went through the whole rotation of country buſineſs; conſtantly ſharing the occupations of the labourer, according to the viciſſitudes of the ſeaſons. As I advanced in

years, I employed the hours of relaxation from ſtudy in converſing with the moſt intelligent huſbandmen I could meet with. Our diſcourſes generally turned upon defects in agriculture, and remedies that might be applied. I was then convinced, and that conviction was the reſult of experience of the advantages attending a rural life. The natural beauties of the country, ſo profuſely diverſified, delighted my ſenſes, and influenced my choice of a profeſſion ſtrictly aſſociated with the contemplation and analyſis of nature. My imagination was pre-diſpoſed to feel the force of the beautiful elogium beſtowed by the Greeks and Romans on agriculture. I acknowledged I had experienced the truth of that charming deſcription, which Xenophon delivers from the mouth of the wiſe Socrates. "There is no condition of life," ſays that divine philoſopher, "however exalted, that "ſhould exempt a man from the practice of agricul-"ture. By exciting in the ſoul an arduous activity "for labour, it diffuſes the moſt pure and delightful "ſatisfaction. In augmenting our riches, it exerciſes "the body, and gratifies every rational wiſh of a "free agent. The earth not only rewards the toil of "cultivation with thoſe bleſſings eſſential to the ſup-"port of life, but alſo indulges us with whatever can "contribute to the embelliſhment of our perſons, "our houſes, our temples! Our ſenſes are regaled "with the moſt agreeable and exquiſite perfumes, "and enraptured with varied proſpects of hanging "woods and enamelled meads. The increaſe of "flocks and herds, neceſſarily ariſing from agricul-"ture, is productive of a variety of aliments, deſtin-"ed for offerings to the Gods, as well as for the ſuſ-"tenance of men. But in this liberal diſpenſation of "her choiceſt gifts, the earth denies their enjoyment to "ſloth and inactivity: requiring, rather, that the bo-"dy, habituated to the inclemency of winter, and the "fervid heat of ſummer, ſhould become almoſt in-

"vul-

" vulnerable, and capable of enduring every kind of
" fatigue. The taſk of manual labour, in obliging
" us to be thinly clad, conſiderably augments the
" ſtrength and vigour of the conſtitution: and the
" neceſſity of riſing early, incumbent on all good
" huſbandmen, by a uniform courſe of exerciſe,
" renders them robuſt, diligent, and courageous.
" Each ſeaſon has its peculiar employment, condu-
" cive to the proſperity of the citizen and the villa-
" ger. He who wiſhes to ſerve his country as a
" warrior, will find material advantages from breed-
" ing and training courſers for the field? Agriculture
" forms men for the camp, by inuring them to hard-
" ſhips. Their expertneſs in digging, makes them
" ſingularly uſeful in foſſes and entrenchments; and
" their dexterity in the chace, ſpeeds their unerring
" ſhaft in the day of battle. What other art ſo
" bountifully diſtributes to its votaries the neceſſary
" wants of exiſtence? Or what other art ſo amply
" recompenſes their care and aſſiduity? A chearful
" fire-ſide in the country, and a warm bath, reſiſts
" the rougheſt blaſts of winter: and a free circula-
" tion of air; the coolneſs of winding rivulets, and
" loftly groves, abate the intolerable ardour of ſum-
" mer. A man of independent fortune will find a-
" griculture the moſt agreeable and ſatisfactory of all
" employments, and what will furniſh him with
" maxims for the ſtricteſt propriety of conduct in
" every ſtation in life. In the cottage, juſtice is ne-
" ver perverted, ſince the beſt labourer is always the
" beſt paid. Humanity, and reciprocal aſſiſtance to
" the wants of their fellow-creatures, are daily prac-
" tiſed by thoſe employed in cultivating the ſame
" field with the ſweat of their brow. Here the Ge-
" neral may learn to inſtill obedience into his troops,
" by following the example of the farmer, who in-
" vites his labourers chearfully to fulfil the taſk aſ-
" ſigned them: rewarding the diligent, and puniſh-

" ing the idle. A good farmer ſees the indiſpenſible
" neceſſity of animating his labourers, in the ſame
" degree a General does his ſoldiers; and the hired
" peaſant, who works for bread, has even more oc-
" caſion for encouragement to perform his taſk with
" alacrity, than the voluntary companion of honour.
" Reverence to the Supreme Being is always incul-
" cated in the moſt forcible manner, from a conſtant
" ſeries of obſervations, that all things are dependent
" on the will of Providence: that ſnow and hail,
" froſt, drought, ſtorms, blights, and a thouſand e-
" pidemical maladies, deſtroy the fruits of the earth,
" and defeat the beſt efforts of aſſiduous induſtry,
" directed by conſummate prudence.

" Agriculture ſeems to poſſeſs an inconteſtible
" right to the title of parent and nurſe of all other
" profeſſions. Obſerve a country, where agriculture
" flouriſhes, and you will behold arts and ſciences
" flouriſh in equal perfection! But where devaſtation
" lays waſte the ſoil, or ſlothful neglect induces men
" to leave the earth uncultivated, a general ſtagna-
" tion, in maritime, as well as commercial affairs,
" immediately ſucceeds."

Theſe truths, ſo worthy of a ſage like Socrates, beamed on my youthful fancy, and enlightened my underſtanding to fathom the ſecret principles of a ſcience, that certainly is of the utmoſt importance and utility to mankind. Though the pride and abſurdity of the polite part have affected to treat it with ridicule and contempt, and even to degrade its followers as a very inferiour race of beings; yet to ſpeak of huſbandmen as a ſociety, they are, perhaps, more deſerving of philoſophical conſideration and inſpection, than any other ſociety in the world! In the country, humanity preſents itſelf to our view, in a ſtate of innocent ſimplicity, reſembling, in ſome degree, the ſtate of nature. The diſtinct faculties and properties of the ſoul may be analyſed with greater eaſe,

eaſe, as they are leſs diſguiſed and oppreſſed with a tinſel parade of artificial ornaments. A chain of reflexion inſtructed me in this great truth, that intrinſic magnanimity of ſoul is unconfined to rank; and that the meaneſt condition furniſhes inſtances of exalted ſentiment and underſtanding, capable of contributing to the general good of the community. I was likewiſe convinced that in all ſituations the conſciouſneſs of a rational application of our talents, the rectitude and integrity of our actions, are the ſources of that pure and tranquil joy which is the conſtant reſult and reward of virtue. Mankind is the ſame in all nations: the different gradations of genius are equally diſcernible in the cottage and the palace. I could trace amongſt ploughmen, the character of a Lycurgus, a Socrates, a Plato, a Homer, and a Lucian! Nor ought I to conceal, that the marks of vice were ſometimes to be met with. The apparent diſtinction between theſe ruſticks and the faſhionable part of the world, ſeems to conſiſt in the objects, not degree, of ratiocination. The country is the proper ſchool for acquiring a more intimate knowledge of human nature: for forming juſt ideas of happineſs, and for diſcerning what conſtitutes the true greatneſs of man. Here I learned to deſpiſe the ridiculous vanity of thoſe literary geniuſes, who fancy their extenſive erudition places them in a ſuperior order of beings; where it is evident, their underſtanding is frequently clouded with prejudices, and their will, a ſlave to the dominion of the paſſions. This vanity, the excreſcence of knowledge, is as contemptible, as it is apparent, to the eyes of a true philoſopher. My ſentiments now became more enlarged; all the diſadvantageous deſcriptions of the manners and genius of thoſe we call ſavages grew ſuſpected, and I lamented our deficiency in relations of travelling philoſophers, capable of inveſtigating the ſecret receſſes of the human heart, and contemplating the

progreſs of nature, in her uncultivated offspring, with judicious and impartial obſervation. I am perſuaded ſuch remarks would throw new light on our enquiries into the different degrees of perfection in the intellectual faculty, and furniſh the friends of human nature with materials for admiration and gratitude to the wiſdom and goodneſs of the Creator in the order and diſpoſition of his creatures. We ſhould find that thoſe nations, whom we brand as ſavage, might, with much more propriety, retort the appellation on their polite gueſts, who forcibly diſpoſſeſs them of wealth and liberty! Nor ſhould we have any remaining doubts, whether thoſe amongſt them, who have participated of the manners and ſciences of the Europeans, act conformably to ſenſe, in ſeizing the firſt opportunity, with eagerneſs, of returning to the ſimple and rational life of their countrymen!

After the preference I have given to a rural life, in regard to the agreeable, as well as the uſeful part, I truſt the world will not condemn me, if, in thoſe hours of relaxation which the buſieſt life allows, I return ſometimes to what conſtituted the enjoyment of my youthful days. Surely I ſhall not incur its cenſure, for ſeeking to inculcate and extend ſome uſeful reflexions, whoſe truth was then familiar to me; or for deſiring to awaken in my fellow citizens, a taſte for ſo noble an employment, and offering them, in the improvement of their own eſtates, the means of eſſentially promoting the welfare of their country. Finally, may I not be permitted, with impunity, to relieve myſelf from the anxious fatigue inſeparable from the practice of phyſick, by a recreation that tends ſo manifeſtly to publick emomulent?

That delightful ſenſation ariſing from the ſtudy of huſbandry, I may now enjoy without reproach, ſince it is become a part of my duty to examine the nature of ſoils. The appointment of firſt phyſician to the republick of Zurich, makes it incumbent on me

to

to watch inceſſantly over the health of her citizens, and pay peculiar attention to the different ſpecies of diet that afford nouriſhment to the different ranks of people. The conſideration of a remedy for an epidemical diſtemper which raged ſome years ſince with great violence amongſt the cattle, was ſtrongly recommended to my care. Some knowledge of agriculture ſeemed a neceſſary preliminary to ſuch a diſcovery, as it almoſt always happens that the origin of epidemical diſtempers ſprings from the meadow and paſture lands. *The rules* (2) (inſerted in our memoirs) *for prevention of epidemical diſeaſes in cattle, by correcting the inſalubrity of the ſoil*, furniſhes proof of what I advance.

This double motive inſpired me with an ardent deſire of exploring and explaining, with all poſſible preciſion, the preſent ſtate of rural œconomy in Zurich; its imperfections and capability of improvement. In this purſuit, I again repeat my happineſs in being a member of a ſociety, who make this intereſting ſubject the principal and conſtant end of their conferences and enquiries. Their aſſemblies, regularly held, ſupply, without any other aſſiſtance, every thing that is inſtructive and advantageous, in communicating thoſe important diſcoveries, with which the moſt active and beſt directed zeal of patriotic ſpirits enriches agriculture in moſt parts of Europe; and which this ſociety ſo well underſtands the benevolent application of to the preſſing neceſſities of our country.

I muſt nevertheleſs acknowledge, that the methods hitherto purſued, do not appear to me, the beſt cal-

(2) The government of Zurich, deſirous to give theſe rules the force of law, publiſhed them by authority throughout their canton. The magiſtracy of Baſil eagerly followed the example. The memoirs referred to, are thoſe of the Phyſical Society, of which the author had been ſecretary. It has been obſerved in the preface to the tranſlation, that the Rural Socrates was read before the Society, and is a part of the memoirs.

culated to anſwer the purpoſes of improvement. An eager purſuit after new experiments, prevails amongſt thoſe, whoſe knowledge of the ancient huſbandry is ſuperficial and incompetent. Some there are who flatter themſelves with being conſidered as the great improvers of agriculure, from the introduction of ſome unknown ſpecies of corn, or artificial graſs. There are others, who expect fame from the invention of ſome new implement of tillage or different method of ploughing and ſowing, whilſt a third ſort hope to acquire it by untryed objects of attention; ſuch as the culture of mulberry-trees, for encouraging the breed of ſilk-worms, &c. In oppoſition to theſe opinions, I apprehend the firſt principle we ought to ſet out upon, is a perfect knowledge of the nature of ſoils, with a competent inſight of ſuch methods of manuring as are practiſed by the moſt indefatigable and induſtrious farmers for the attainment of a degree of fertility. What remains, is to procure a free communication of theſe diſcoveries in huſbandry, and an endeavour, by all poſſible means, to incite a laudable and fervent emulation in the farmers. This I ſhould think an eligible plan for reſtoring agriculture to a flouriſhing ſtate. The moſt circumſcribed genius may follow practical rules, unmoleſted by any obſtacle; whilſt new inventions are attended with a croud of difficulties and objections. One part of mankind believe that, in adopting them, we inſult the memory of our worthy progenitors, who, according to their way of reaſoning, have tranſmitted to us the common methods of cultivating lands; and who, by their œconomy, love of labour, and many other reſpectable qualities, are deſervedly the objects of our imitation. Another part agree, that the late diſcoveries are certainly very beneficial to particular countries, but repugnant to the nature of our ſoil. There are yet a third ſet of objectors, who allow all theſe improvements to have advantages

in particular reſpects; but aſſert, that their ſuperiority over the vulgar courſe of huſbandry is ſo equivocal, they muſt, at leaſt, be conſidered as of ſmall utility. Inſtead of contenting ourſelves with recommending the huſbandry of our beſt farmers as a model for others, let them be encouraged to purſue it by the teſtimony and conviction of their own eyes. The experience neceſſary to aſſure them whether ſuch or ſuch methods are beſt adapted to the nature of the ſoil and climate is already attained, and the advantages ariſing from them eaſily calculated. Beſides, that it cannot be diſputed, notwithſtanding what has been alledged, of the general decline of agriculture amongſt us, there are farmers in Switzerland who may be accuſed of any thing rather than ignorance in huſbandry. A more univerſal and generous diffuſion of the knowledge of individuals, ſeems all that is wanting to bring this art to perfection. The traveller, who croſſes the greater part of our cantons, is amazed at the diverſity of natural riches preſented to his view, in a country ſo wild and romantick. It is ſcarcely conceivable how the inhabitants have been able to collect within ſo limited a ſpot, the various productions of almoſt every part of Europe! He traverſes the fields covered with waving corn, terminated to the right and left with vineyards: orchards of fruit conceal the villages from his ſight; whilſt he hears the diſtant ſound of lowing herds and bleating flocks from the mountains that furniſh them with food! I will even venture to affirm, that many ſtrangers may draw uſeful obſervations from the cuſtoms, and practical regulations of our moſt diſtinguiſhed farmers. Perhaps the paucity of writers in our own country may be the only reaſon for her not having acquired that reputation for rural œconomy, which ſhe enjoys with an uncontrouled title in all other branches of the arts.

I have no meaning on the other ſide to depreciate the merit of thoſe noble-minded fellow-citizens, who have appropriated a conſiderable part of the ſuperfluity of their income to the procuring of new-invented implements of huſbandry: ſeveral ſorts of grain and graſs-ſeeds, trees and ſhrubs unknown in our climate, which have the experience of other countries in their favour, as well as the trials made before they were communicated. Theſe publick-ſpirited attentions, of whoſe good effects we have already reaped ſome advantage, undoubtedly merit our commendation and acknowledgement. The introduction of potatoes, turkey corn, or maize, and the progreſs of preparing turf (or peat) for fuel, may be compriſed in the number: yet this plan for the improvement of agriculture, appears more uncertain and infinitely ſlower in its progreſs than that I have ventured to recommend. More uncertain, becauſe men are too apt to embelliſh a favourite theory in their writings. The ſpecies of vegetation or method of manuring they are fond of, is often extolled far beyond reality, and they give the reins to fancy in laviſh deſcriptions of ideal excellence. It muſt be a long courſe of experiments that alone can determine whether this or that corn or graſs may be naturalized with real benefit to a country, or the adoption of a new ſyſtem of huſbandry, with its attendant expence, be an advantageous compenſation for abandoning the old one. Experiments commonly ſucceed to admiration in a well-cultivated garden or nurſery ground; but when extended to large incloſures, the luxuriance of the produce is often greatly checked and diminiſhed, and its utility abſorbed in the expence of labour. I have alſo obſerved, that new inventions are very ſlow in their effects, and can be of no real benefit till they become habitually eſtabliſhed cuſtoms. It is a work of time to convince a peaſant that the alterations you propoſe are eligible: to perſuade him to a renunciation

tion of rooted prejudices, and to deſert the courſe of huſbandry inſtilled into him by his forefathers, in favour of novelty and inexperience.

I meet with nothing on this ſubject ſuperior to the words of Socrates. "I have ſtudied," ſays he, "with "uncommon aſſiduity, the characters of men of "every profeſſion, who have been diſtinguiſhed "for prudence and underſtanding. I obſerved with "aſtoniſhment, that amongſt thoſe engaged in the "ſame occupations, ſome were rivetted in penury "and want, whilſt others enjoyed affluence and eaſe. "The cauſe of this inequality ſeemed worthy of the "exacteſt and moſt accurate examination; and the "pains I took to inveſtigate it at length ſucceeded: "I perceived that thoſe perſons who formed no re-"gular plan of life, ſtrangers to reflexion and fore-"ſight, thoughtleſs of to-morrow, were, by the ne-"gligence of their conduct, the ſole authors of their "own diſtreſſes and diſappointments. Thoſe, on "the contrary, whoſe ſteady and enlarged principles "govern and guide their ſagacious and determined "views; who unite, in their ſeveral profeſſions, di-"ligence and attention, order and punctuality, qua-"lities which ſmooth the rugged paths of life, will "find the journey more eaſy, more ſpeedy, and "infinitely more lucrative. Theſe are maxims which "whoever attends to, muſt gain his point, in defi-"ance of oppoſition, and amaſs wealth, ſhould the "malignity of men, or demons, endeavour to wreſt "it from him."

I had the good fortune to meet with one of theſe men, whom Socrates deſcribes, in the perſon of Jaques Gouyer, a native of Wermetſchweil, in the pariſh of Uſter. I am indebted for his acquaintance to my dear and excellent friend M. Vægueli, with whom I had many converſations upon what might be moſt conducive to the improvement of agriculture in Switzerland. My friend could not have done me a more valuable

luable piece of ſervice; it calls forth all my gratitude, and I never was ſenſible of equal ſatisfaction to what I have experienced in my intercourſe with this uncommonly ſingular character. Jaques Gouyer preſented to my admiring eye, the moſt exalted faculties of the human ſoul, in that ſtate of noble engaging ſimplicity, void of pretenſion and oſtentation, ſuch as nature's plaſtick hand firſt formed us! The circumſtantial deſcription I am preparing to give of his œconomical abilities, compriſes, in my opinion, every thing that Socrates recommends; every thing that can moſt eſſentially inſtruct us in bringing huſbandry to a ſtate of perfection. I ſhall think myſelf happy if any effort of mine ſhould kindle a laudable and noble emulation in our farmers. The juſt praiſe beſtowed on the man I have ſelected for a model; the honours paid to his rare talents, may at leaſt convince the farmers of the province of Zurich, that whenever they fulfil the duties of their ſtation with equal intelligence and aſſiduity, they will, like him, draw down upon their heads the benediction of heaven, with the univerſal eſteem and approbation of mankind.

In my delineation of the domeſtick conduct of this extraordinary perſon, I ſhall always call him Kliyogg (or little James), the only appellation he is known by in his own country. Every thing in him, to the leaſt perceptible traces of character, offers a portrait, the combination of whoſe parts is ſo admirable, that I ſhould be diſpleaſed with myſelf if I omitted the ſmalleſt line in the original. The character of Kliyogg, is not that of a man, reduced by frequent converſations with the inhabitants of ſome neighbouring city to aſſume and be deſpiſed for affecting manners incongruous with the ſituation of a peaſant; much leſs one, whom the ſociety of men of letters, or a ſuperficial knowledge of books, has made a pretender to learning. Kliyogg is obliged to nature and his

his own reflexions for the wiſdom he poſſeſſes: he owes nothing to art. Contented with his lot, he perſeveres in refuſing the acceptance of any office that might give him conſequence in the village where he reſides.

His brother lives with him: their families, though large, form but one houſhold. Kliyogg has ſix children, and his brother five. They are all, except one daughter, mere infants. At the death of their father, his inheritance was divided amongſt five ſons: the eldeſt choſe the richeſt part of the eſtate for his ſhare; the two next preferred money, and our aſſociates remained joint heirs to a tract of land of about ninety-four acres (4). It runs thus:

Meadow ground	15	Acres.
Arable	45	
Paſture	24	
Wood	10	
Total	94	

The value of this farm might be 875 l. It had a mortgage upon it of 437 l. 10 s. at the time of their father's death. Beſides this, it was charged with the payment of the younger brothers fortunes. One of theſe died ſoon after, and returned them a third part; ſo that by adding the youngeſt ſon's fortune of 109l. 16s. the debt amounted to 547 l. 6s. This undoubtedly appeared a heavy incumbrance on ſo ſmall an eſtate; and the neighbouring farmers judged with great probability, that our two brothers muſt ſoon ſink under it.

(4) Acres, in the canton of Zurich, vary from 30,000 to 36,000 royal ſquare feet. The proportion between the Paris royal foot and the Engliſh foot is this: if the Engliſh foot be divided into 1000 parts, the Paris one will be 1068. The Engliſh acre contains 43,560 Engliſh feet, or 46,522 Paris ones; therefore, ſuppoſing the Zurich acre to be 33,000, the proportion between the Zurich and Engliſh will be, as 10 to 14; that is, 10 Engliſh acres will make 14 Zurich ones, which is nearly $1\frac{1}{3}$.

Indeed,

Indeed, how could they ſee any other proſpect in their hazardous ſituation? Involved with the management of a farm, whoſe produce muſt previouſly raiſe an annual rent-charge of at leaſt 211. 17s. for the payment of intereſt, and the land ſo impoveriſhed and neglected, that it ſeemed impoſſible to manure it but at an immoderate expence. A family ſo circumſtanced, where there were many mouths to be fed and few hands to work, muſt occaſion great conſumption, and afford ſmall aſſiſtance. Towards the cultivation of a farm, the neceſſity of hiring labourers, appeared indiſpenſable, whoſe wages are greatly advanced from the manufactures carried on in that part of the country. So many united obſtacles, produced that effect on the mind of Kliyogg which they ought, but rarely do produce on the mind of every other man! They animated him with reſolution to redouble his zeal and application to ſurmount them. He made reflexions on the beſt manner of improving his eſtate, and purſued it with ſpeed and alacrity. Heaven beheld his perſeverance with a ſmile of complacency, and raſh-judging envy was forced to acknowledge, that our prudent œconomiſt contrived, without foreign aſſiſtance, or contracting freſh debts, conſiderably to augment his income. His children are abundantly ſupplied with food and raiment; the health and vigour of their conſtitution encreaſes, and he has all imaginable reaſon to hope they will, in a few years, be able to aſſiſt in rendering the taſk of labour ſtill more ſucceſsful. Punctuality in payment keeps his mind at eaſe, and the overplus his œconomy ſupplies, enables him to extend improvements, and even to purchaſe, as they fall in his way, ſeveral pieces of ground that are conveniently ſituated. Does not the example of Kliyogg, in a great meaſure, contradict the eſtabliſhed opinion, that the owner of an incumbered eſtate is incapacitated from making improvements, for want

want of the neceſſary utenſils of huſbandry, and live ſtock to enrich the ſoil?

Kliyogg's live ſtock conſiſted of

Oxen	—	—	3
Cows	—	—	4
Horſe	—	—	1
Hogs	—	—	2
In all	—	—	10

His cows are ſmall, according to the breed in that diſtrict, but well fed, and yield plenty of milk. The purchaſe of the fineſt cow he ſets at 3l. 1s. 3d. The ſecond at 2l. 12s. 6d. and the two ſmalleſt ones at 2l. 3s. 9d. The profits of the dairy are conſumed in the family. According to his calculation, excluſive of graſs in the ſummer months, they eat two loads of hay each cow annually. His oxen are ſtrong and well made, and coſt about 5l. 9s. 4d. a beaſt. Though they are hard worked, they are in good plight. Their allowance is three loads of hay per ox. Kliyogg finds it anſwer to buy two or three lean bullocks every year and fatten them for market. The firſt price of theſe is commonly 4l. 7s. 6d. and the allowance to each a load of hay, which may be laid at 1l. 6s. 3d. The ſelling price of a fat bullock is 6l. 2s. 6d. ſo that his profit, in reality, is no more than a piſtole; and, ſmall as it is, depends on the conſtitution of the animal, and the riſe and fall of the market. It is not from this article that Kliyogg expects advantage, but from another more to be depended on, the encreaſe of dung for manure.

Kliyogg finds his horſe more expenſive than ſerviceable, and ſeems determined to ſell him, and lay out the purchaſe money in bullocks. A horſe, he ſays, is a very expenſive animal. He requires the ſame quantity of hay as the ox, beſides oats to the amount of a piſtole a year. The value of a horſe decreaſes with

with years; whereas an ox, when old and paſt labour, may be fattened and ſold to his maſter's benefit. In a word, he computes, that two oxen may be maintained to one horſe (5); and, it may be added, horſe dung is not near ſo beneficial to land as that of horned cattle.

The advantages Kliyogg derives from his cattle are, firſt, milk and butter, for family uſes: ſecondly, work: thirdly, manure. He very rationally conſiders the laſt article as the fundamental baſis of improvement of ſoil; conſequently he has applied the whole force of his care and induſtry towards its accumulation; and has ſo well ſucceeded, that, from his ſmall number of beaſts, he collects yearly, about a hundred tumbrel loads (6). This is double the quantity he gathered the firſt year of his farming, which was equal to what had been done by any huſbandman in the village, and led him to conclude, "that the generality "of farmers have too great a proportion of live ſtock "to their ground." A concluſion that appeared to me at firſt very extraordinary! and almoſt tempted me to believe my philoſopher a man of paradox and ſingularity. But his explication of this ænigma, ſatisfied and undeceived me. "When a farm," ſays he, "is over-ſtocked, the farmer is forced to ſend "his cows, in the ſummer months, to graze on com-"mons at a diſtance from their ſheds, which is the

(5) This determination of our cultivator is very remarkable, and ſhould be attended to by all Engliſh farmers and others, who ever have an opportunity of making a choice between horſes and oxen for the works of huſbandry. This peaſant attended to the minutiæ of the compariſon with an accuracy unattainable in his ſuperiors. He worked them, fed them, and performed every office relative to them himſelf. How particularly judicious therefore muſt be his ideas of the matter! The proportion of *two* to *one* is a prodigious ſuperiority to oxen, abſolutely deciſive: it is the diſcovery of a proportion that was greatly wanted in huſbandry, and ſhould be kept in memory as a point of knowledge.

(6) Tombereau.

"loſs

" loſs of ſo much to the farm-yard. The poverty " of theſe commons reduces their milk; and to re- " medy this inconvenience, the manger muſt be fill- " ed with freſh graſs when they are brought home at " night, which infallibly occaſions a diminution of " winter ſtores. Scarcity of hay muſt be ſupplied with " ſtraw, which ought to have been entirely appropri- " ated to the uſe of the dunghill, as without it no " improvement of ſoil can be expected: beſides that, " the want of ſucculence in food is the ſource of an " infinite variety of diſtempers." In this manner the judicious Kliyogg pointed out one of the principal cauſes of the decline of agriculture in this country. It is a certain fact, that many of our farmers keep more cattle than they can conveniently ſupport in winter. The arable and meadow lands are, by this bad management, deprived of part of the manure they require. The cattle enfeebled for want of wholeſome nouriſhment, particularly as ſpring advances; ſome loſe their milk, others their labouring ſtrength, and frequently die of diſeaſes eaſily accounted for! Theſe are melancholy truths that experience too well evinces (7)!

Our ſagacious huſbandman keeps no more live ſtock than he can amply ſupport with graſs and hay from his own fields. The ſtraw is carefully preſerved, and uſed only for litter, which he is ſo liberal of in his

(7) This part of Kliyogg's œconomy is very particular. The Swiſs farmers muſt manage very differently from the Britiſh ones, to be ſo over-ſtocked with cattle. The misfortune in this country is, the not keeping enough; but how a man ſhould in general over-ſtock himſelf in winter I know not, without ſuppoſing the moſt egregious folly. Large ſtocks of cattle are the ſoul of good huſbandry; but winter food ſhould certainly be provided. The writer of this work does not ſufficiently explain the article of winter: I apprehend it is hay alone: all the ſtraw is for litter: turneps are mentioned, but ſo very ſlightly, that one can diſcover nothing of their management. If therefore hay is the only food, the over-ſtocking is explained, but the huſbandry is wretched.

ſtalls,

ſtalls, that the beaſts are entrenched in it up to the knees (8).

He is particularly attentive in gathering all the dried leaves, moſs, and ruſhes from his ground, that can ſerve for litter. The ſmall dead boughs of fir-trees, afford plentiful materials for this purpoſe, and he employs in that occupation the greater part of the time he can ſpare from actual labour. A compoſt dunghill appears to him an object of ſo great importance to the improvement of land, that, of all branches of labour, he regrets the want of aſſiſtants in this ſalutary work the moſt; and waits, as a ſingular bleſſing from heaven, the time when his children will be capable of contributing their ſhare. So thoroughly is he perſuaded that he wants only labouring hands to procure fifty loads more of manure without encreaſing the number of his cattle.

In proſecution of this deſign, in autumn, during the moon's encreaſe, Kliyogg goes into his wood with a hedge-bill to prune the ſupernumerary branches of firs and pines; lopping thoſe he thinks it for the advantage of the tree to leave, and boldly venturing to cut the lower ſhoots of young trees cloſe to the trunk: theſe he binds into faggots and carries home, placing them in a cart-houſe till a proper ſeaſon for proſecuting his work. At leiſure hours, and eſpecially in long winter evenings, he prepares theſe faggots for the purpoſes intended: an employment neither diſagreeable nor fatiguing, which ſerves him for recreation. He begins with cutting the ſmall boughs and prickles from the larger ones, laying them in little heaps to be uſed for litter, while the larger ones are reſerved for fuel. By this method of proceeding, he amaſſes a great many proper materials for good manure: materials that are commonly ſuffered to rot

(8) A moſt excellent practice that cannot be too much admired. It is amazing the quantity of manure that may be raiſed by ſuch practices, when a man can command a plenty of litter. *

uſeleſly in the woods, which is ſo much real injury and loſs to huſbandry. Kliyogg conſiders this diſcovery as an ineſtimable treaſure, of which we were either ignorant, or had forgot we had ever known. An opinion farther verified in Zelwegner's deſcription of the method of huſbandry in the canton of Appenzell. They there ſcatter the dead branches of fir and pine-trees in great roads to be trampled by cattle and paſſengers, by which means they acquire a beginning of putrefaction, and are converted into manure of a very indifferent quality: but Kliyogg, who had experienced how defective this method was, has ſucceeded in what, at firſt, ſeemed hard to accompliſh; converting theſe very materials into excellent manure. It is known that the reſinous and aromatick juices contained in the prickly parts of pines are powerful enemies to putrefaction: but what obſtacles are not to be ſurmounted by reaſon and vigilance, ſeconded by induſtry and labour? Kliyogg ſubdued them all, by ſubmitting to certain rules in the preparation of litter for his cattle, and in peculiar attention to the different ſtrata of his dunghill.

In regard to the firſt article, he ſeldom removes the litter under a week, ſtrewing freſh upon the top once a day; by which means it becomes impregnated with animal ſalts, and acquires a very evident degree of fermentation before it is removed to the dunghill. An objection may ariſe againſt this practice, which I could not avoid making myſelf: that the ſtrong effluvia ariſing from the fermented litter, muſt be prejudicial to the health; but Kliyogg aſſured me, experience contradicted this, and thanked God that his beaſts had been remarkably healthful and vigorous: nor does this method prevent cleanlineſs, if a conſtant ſupply of freſh litter is attended to: the cattle are, at the ſame time, more warm and comfortable.

This exactitude is equally conſpicuous in diſpoſing of the litter when taken away. It is laid in ſeparate heaps upon the dunghill, ſo methodized, that thoſe where the fermentation is already advanced, may accelerate the putrefaction of others where it is more ſlow. In the beginning of autumn he litters his cattle with ſtraw for two months; the next two months he litters them with bruſh-wood and ſpines from fir and pine trees; then ſtraw again or ruſhes and dried leaves; then bruſh-wood, and ſo on alternately.

The regulation of his compoſt dunghill is as follows: leſt the fermentation ſhould be totally ſuppreſſed, or even checked by drought, he is aſſiduouſly attentive to the preſervation of a certain degree of moiſture. The celebrated M. de Reaumur, in his treatiſe on hatching eggs in ovens or hot-houſes, obſerves, that when the heat of the hot-bed decreaſes, it ſhould be watered to encreaſe fermentation. The ſagacity of our philoſopher has explained to him, that to obtain a manure thoroughly rotten, he has nothing to do but to preſerve a conſtant fermentation by frequent waterings. To facilitate this, he has ſunk ſeven large ſquare pits, which have wooden covers. In theſe pits he keeps the prolifick water, eſſential to ſo many operations: firſt, putting ſome thoroughly fermented cow dung at the bottom, he pours in a proper quantity of boiling water, and then fills up the pit with freſh water from a neighbouring pond: this brings on, in three weeks, a ſtate of putreſcence, which, without boiling water, could not be attainable in two months. He has thus a perpetual ſupply of corrupted water, as well for the purpoſes of vegetation, as to keep his dunghill in a conſtant ſtate of humidity (5). But as the expence and labour of ſuch a work

(5) Were the encouragers of agriculture to compare what is here related with part 11, ſection 5, of that incomparable work of Dr. Francis Home's, already quoted, they would certainly be ſtruck with

a work might far exceed the profit: Kliyogg has thought of a means, that, in a great meaſure, reduces both; this he calls, in his language, "going the "ſhorteſt way to work;" which is a fundamental maxim in all his proceedings. In purſuance of it, he dug a pond in an orchard adjoining to his warehouſe at a proper height, to convey whatever quantity of water he has occaſion for by a wooden pipe directly into the copper. His reſervoirs of ſtanding water are ſunk, with the ſame view to conveniency, below his ſtalls and ſtables. There is likewiſe a trough at the declivity of the dunghill, to receive the water that drains from it, which gives an eaſy opportunity of moiſtening the dunghill frequently, without robbing the ſoil of its appropriated ſhare of the ſtanding water.

The ſucceſs of this method of watering ſuggeſted an idea of preparing ſmall twigs of fir or pine for culture, without being uſed for litter. His proceſs was to lay them in cloſe heaps, preſſed down,

with the exact ſimilarity that appears in the practical huſbandry of our judicious peaſant, and the precepts the Doctor gives as new obſervations. Kliyogg diſcovered them by the light of nature; Home, by his profound knowledge in chymiſtry! "Let us make," ſays he, page 61, "ſome practical obſervations with regard to the "management of dunghills; for this is an affair of conſiderable "importance, and in which farmers ſeem to be very ignorant.

"Dry vegetables require a conſiderable degree of moiſture be"fore they can be brought to putrefy. I think dunghills are ge"nerally kept too dry, as they are commonly placed on a high ſi"tuation, and are themſelves raiſed to a conſiderable height. A "hollow ſituation, which will retain the moiſture, is the beſt. "Too much moiſture is likewiſe bad. This may be prevented "by having hollow places with clay bottoms at the ſide of the "dunghill, into which the ſuperfluous moiſture may be allowed to "run, and from whence it may be reſtored again by pumps to the "dunghill at pleaſure."——And again, "there are ferments for "the putrefactive fermentation as well as the vinous. Hence Stahl, "*Corpus in putredine exiſtens*, &c. &c."

If the urine of horſes and ſtall-fed cattle is carried into proper reſervoirs, and there allowed to turn ſtale, it will, if thrown on the dunghill, very much quicken the fermentation.

and covered with earth, to prevent evaporation, and to pour ſtagnated water on them every day till converted into rich mould.

Kliyogg is ſo perfectly convinced of the efficacy of heat in accelerating putrefaction, that he believes all ſoils, even the moſt barren, may be rendered ſuſceptible of fertility by the help of fire: upon this principle (6) he infers, that an extremely hot dry ſummer will be ſucceeded by a remarkably fruitful one. "Heat," ſays Kliyogg, "putrifies (7) and enriches." In conſequence of this opinion he told me, about the middle of the winter 1759, that the enſuing harveſt would yield three ſheaves inſtead of one. The event

(6) It may be neceſſary to obſerve, that where the ſoil is ferruginous, that is, impregnated with iron, fire will, on the contrary, encreaſe its ſterility. The farmer cannot be too careful in examining the quality of his lands by the uſual experiments, which cannot be too often repeated.

(7) We ſhall be ſenſible of the truth of this obſervation of our judicious peaſant, if we extend our reflexions to thoſe countries where the climate, without being exceſſively hot, is yet ſeveral degrees warmer than our own; and where we ſhall find a much more vigorous vegetation than can be accounted for from difference of ſoil or labour. Herodotus aſſures us, the lands of Babylon produced from two to three hundred ears of corn to our one. Pliny ſays, that in Lybia, the proportion was one hundred and fifty: Chili produces from ſixty to eighty and a hundred. The fertility in particular diſtricts of Peru, is ſtill greater. There are fields where the reapers gather four or five hundred to one of all kinds of grain. Mr. Adamſon, an ingenious naturaliſt, attributes the extraordinary fruitfulneſs of the ſands of Senegal to the effects of heat. He informs us, that he ſowed ſeveral ſorts of leguminous ſeeds, which afforded twelve crops in a year. The never-failing golden harveſts of Sicily, Ægypt, and part of northern Africa, are well known; and with what riches the kingdoms of Sicily and Spain formerly repaid the labour of the huſbandman, when the one could maintain thirty-two cities, and the other furniſh bread for fifty-two millions of inhabitants! Let us recollect the ancient fertility and population of the Holy Land. Let us caſt a look towards China, and ſome particular provinces of India and Perſia, and we ſhall be convinced at leaſt, that all things conſidered, there cannot be ſo great a proportion of manure, or of indefatigable labouring hands in thoſe countries as in our own.

con-

confirmed the prediction. He repeated the ſame thing immediately after the drought laſt year; which is verified in the preſent year of plenty, 1761. It will even appear that the earth has been more laviſh in her productions this year than the preceding, if allowances are made for conſtant north winds, till the beginning of April.

Our indefatigable cultivator does not bound his improvements within the circle of that quantity of manure, however ſurpaſſing credibility, which his induſtrious application increaſes from ſo ſmall a number of cattle. He buys every year ſeven tumbrel loads of dung, which coſt him 1l. 10s. 7d. Theſe he mixes with ſix tons of peat aſhes, which come to about 2s. the twenty buſhels. He finds the effect of theſe two kinds of manure anſwerable to the price.

Not ſatisfied with this, he turns his attention towards other methods of enriching land. With this view he took a journey into the bailiwick of Kegenſperg, where they uſe marle with great ſucceſs; which is found in abundance below Laguerberg. He made ſtrict inquiry into its properties and the manner of uſing it. This ſpecies of improvement appeared to him ſo deſirable, that at his return he made many unſucceſsful attempts to diſcover marle in his own grounds. What pity that this examiner of nature ſhould be a ſtranger to the uſe of the boring inſtrument in theſe ſort of enquiries! As a ſuccedaneum for marle his induſtry diſcovered a method of improving land that anſwered very near the ſame purpoſes from a ſmall gravel, of which I ſhall give a circumſtantial detail when I deſcribe the manner of Kliyogg's preparing his land for corn. He likewiſe found in turf, cut from the ſurface of the paſture or fallow land, where the graſs is very luxuriant, proper materials, when well prepared, for rich manure. The preparation conſiſts in expoſing the turf for two years in open air, to all the influence of tempeſtuous ſeaſons, till en-

tirely decayed, when it may be ſpread with certainty of ſucceſs on meadows or corn-fields. Kliyogg never ſuffers prejudice of any kind to lead him to the rejection of new experiments, but thinks them all deſerving of a fair trial, and teſtifies his gratitude to the kind communicator. He apprehends, in general, that all mixtures of earth, where their nature is diametrically oppoſite, contributes to fertility; nay, even where the diſtinction lies only in colour; and has no doubt of improving a field, if he can contrive to carry, at a moderate expence, freſh mould to it of a different quality. Thus a light ſoil is improved by a heavy one; a ſandy ſoil by a clayey one; a blue clay by a red clay, &c.

It is by this compound method of huſbandry that his fields are enriched; and a perfect knowledge of the various ſtrata of earth and their occult qualities, is, in the opinion of our judicious cultivator, the fundamental baſis of agriculture: lands are more effectively improved, and with leſs trouble, by proper manure, than (8) by frequent ploughing or digging, notwithſtanding that Tull, an Engliſh writer, attempts to prove the ſufficiency of the latter. Let it be granted that manure has no other effect than to heat and render the earth more porous, from the fermentation excited. Is not this effect more likely to be produced from the facility with which it penetrates according to its nature, the ſmalleſt particles of earth, when in contact with them, than from a ſimple diviſion of theſe particles by an operation merely mecha-

(8) Thoſe parts of rural œconomics which have divided the opinion of the ſuperior claſs of cultivators, will by them be very ſeldom determined: their ingenuity is too great to admit of entire conviction: the unprejudiced part of the world ſhould, in ſuch caſes, be determined by opinions totally unbiaſſed by *ſyſtems*. Kliyogg's teſtimony in this affair coincides with that of the beſt huſbandmen from the beginning of the world to this day; and I have found it true from the proof of ſome hundreds of particular experiments on both gravelly and clayey loams *

nical? It may likewiſe be added, that the oleaginous and ſaline parts contained in manure are extremely conducive to the nouriſhment of plants; nor is it leſs certain that a union of theſe two methods of improvement, is the ultimate perfection of huſbandry. It would be for the advantage of every farmer, if he had leiſure to plough his lands according to the rules laid down by Tull and his imitators, after having firſt dreſſed them with proper manure (9).

We will preſently take a view of the conſequences of the labours of Kliyogg and their agreement with various ſoils he cultivated.

(9) "The late King of Pruſſia, an excellent financier in many "reſpects, and who had very enlarged ſchemes for augmenting "the publick revenues, reaſoned very juſtly on the eſtabliſhed prin- "ciple of his political ſyſtem, that agriculture is the foundation "of the opulence and proſperity of a ſtate. He encouraged it in "the ſtrongeſt manner, and made ſeveral regulations in its favour, "whoſe wiſdom was unperceived till many years after. The con- "ſtant attention he paid to the obſervance of theſe regulations com- "pleted their ſalutary effects. This monarch had underſtanding to "know (and all financiers ought to be proud of receiving inſtruc- "tions from a maſter) that the moſt ſtubborn and infertile ſoils are "meliorated by manuring and ploughing; and that rich lands are "made ſtill richer. He therefore inſiſted that the farmers of his "demeſnes, and proprietors of eſtates in lands, ſhould manure them "ſufficiently, and plough them deeply and frequently. When the "king was expected to paſs through any of the provinces, the gen- "tlemen, the farmers, nay even the peaſants, thought they could "not pay their court better than in placing a large dunghill before "their doors! A powdered courtier might ſneeringly deny this œ- "conomical attention a place amongſt the royal virtues; but the ſa- "gacious monarch was ſenſible, that theſe dunghills ſpread over "the fields would produce a crop of ducates. He had the ſatisfac- "tion to ſee, after reigning ſome years, the ſands of the Mar- "che of Brandenburg, the heaths, and moraſſes of Pruſſia, covered "with a plentiful harveſt of the fineſt corn in the world. The "king, his ſon, ſupplied all that was wanting to bring this noble "plan to perfection; and we have ſeen in a very ſhort ſpace of "time, the ſandy deſart, that extended to the very gates of Berlin, "converted into excellent land by a kind of œconomical enchant- "ment." (Political Inſtitutes, by Baron Bielfeld. Vol. 1. p. 181).

His meadow land is all ſituated upon the flat, divided into the following pieces:

An orchard (the graſs of which is mowed and given to the beaſts in the ſtable during the ſummer), quantity of land —	1	acre.
A meadow at the bottom, divided into five pieces, which may all be laid under water — —	6	acres.
The produce of theſe in hay and after-graſs — —	12	loads.
A long meadow of —	4	acres.
Produce — —	7	loads.
Another, ſituated in the Winikin, of	4	acres.
Produce — —	8	loads.
Hay and after-graſs —	15	loads.

Both theſe have occaſion for manure, as they cannot be overflowed.

He hires moreover in a village adjacent, a meadow of three acres for 4l. 16s. 3d. per ann. which is already greatly improved. His induſtry has enabled him to augment his crop of hay eight loads, which is almoſt one third. I was curious to know why the long meadow did not furniſh ſo much hay by a load as that in the Winikin, though their dimenſions were exactly the ſame? He imputed this deficiency to neglect of manuring and ploughing, as he had wanted time to finiſh them properly. It ought to be obſerved, that the hay was commonly double the quantity of the after-graſs. An acre of land, improved to the height, according to Kliyogg's computation, will require, for two years, ten loads of dung, or twenty tons of peat aſhes (10); and he thinks the latter ſort of manure anſwers beſt for meadows that cannot be overflowed.

(10) This proportion is a point of conſequence, and ſhould engage all farmers who have the opportunity of getting peat, to make the full uſe of ſo excellent a manure *.

Laying

Laying meadow under water, furniſhes a ſecond means of improving the ſoil ſo extremely advantageous, that the difference is very immaterial between the crops of a meadow well watered or well manured (11). This, indeed, greatly depends on the properties of the water, and ~~and~~ the method of conducting it over the ground: water from the pureſt ſource, is, in his opinion, the beſt, eſpecially when it can be procured immediately from the river itſelf; for he obſerves, it inſenſibly decreaſes in virtue in proportion to the diſtance. I confeſs that I could aſſign no ſatisfactory (12) reaſon

(11) This is a part of huſbandry ſtrangely neglected in England, but of undoubted importance: I experienced it in my Suffolk farm, and yet ſtronger in my preſent Hertfordſhire one, where any perſon that will call on me may ſee the vaſt difference between a meadow in the parts watered and unwatered. I had this year (1769) as much hay from off one watered acre, as all the other four unwatered ones in the ſame field *.

(12) The difficulty is not perhaps ſo great as may be imagined, to ſupport this obſervation of Kliyogg's on phyſical reaſoning. A deep ſtream preſerves near its ſource, a temperature very little variable in all ſeaſons. From eight to ten degrees above freezing, is, according to Reaumur's thermometer, the greateſt variation. But a river, whoſe ſurface conſiderably exceeds its depth, will acquire, during the ſummer ſolſtice, an increaſe of heat in proportion to the diſtance from its ſource. When this is too intenſe, it has been proved, that far from refreſhing the graſs, it parches and injures it in many reſpects. It is alſo cuſtomary in ſome countries to overflow meadow land in winter, eſpecially towards the ſpring; when water gradually melts the ice that may have lodged; but if this operation was left to the action of the ſun, they alledge, the effects would be too precipitate and violent, and prove greatly pernicious to the young blades of graſs. One may naturally conclude, that the winter beſt calculated for enriching a ſoil, has that degree of temperature already ſaid to be inherent in water, near its ſource: and that a ſtream which from the length of its courſe has conſiderably augmented its original heat or cold, according to the ſeaſon, muſt be more hurtful than beneficial. A further confirmation of this hypotheſis is, that water is always pureſt at it ſource, and acquires heterogeneous qualities from the land it paſſes over. Thus it may be impregnated with minerals, or diſcoloured with brick earth, or imbibe many noxious properties deſtructive to the fertility of the meadows it overflows. On the other ſide, there are in-

reaſon for ſuch a diminution, but did not think myſelf authorized to diſpute the reality of his obſervation, having found in him, on all occaſions of enquiring, thoſe diſcriminating talents which conſtitute the character of an accurate philoſopher; that facility of catching and diſpoſing of objects in the right point of view, and that ſteadineſs of attention in examining their conſtituent qualities, diſengaged from prejudice. What I particularly repeat is, his indifference to render his ideas as diſtinct to others as they are to himſelf; and to methodize in all his obſervations the preciſe cauſes on which they are founded. It ſuffices, in truth, for his own purpoſes, to have his conception of things clear and comprehenſive; but this perſpicuity which exiſts in his own underſtanding, does not communicate itſelf in his converſation with equal clearneſs. Perhaps it is in this particular that natural genius, whilſt uninterrupted, differs from what it appears when cultivated and adorned by art and application. The perception of Kliyogg is wonderful: he revolves in his own mind the moſt minute particulars or diſtinctions in the ſubject of his contemplation with amazing velocity and ſtrength of judgement, but he does not trouble himſelf to diſcloſe or explain them by words. His eye takes in with a degree of preciſion the dimenſions of an object; he retains a ſtrong idea of it, but vague and indeterminate, be-

inſtances of water drawn from the head of the ſpring, being found pernicious to adjacent meadows, and ſalubrious to thoſe more remotely ſituated. Some rivers may, at their origin, contain arſenical or other noxious particles, which they may depoſit in the beds of ſand or gravel over which they run, and thus become purified. But it does not ſeem adviſeable to overflow any land with ſuch water, either during the exceſſive heat of ſummer, or the intenſe cold of winter. Excellent remarks on watering lands are to be met with in a memorial, which carried the prize, given by the Œconomical Society of Bern, inſerted in their Journal, Vol. XI. ſold at Zurich by Heidegguer and Company; and at Paris by Brocas and Humbolt, II Jaccuos.

cauſe

cauſe not built on any eſtabliſhed rules. Thus his calculations remained confuſed and unſettled, and are often loſt in new ones. I thought it incumbent on me to engage him to correct theſe defects. I inſtructed him in the method of keeping regular accounts of his expences, and recommended his ſending one of his ſons to learn writing and arithmetick, nor had I any difficulty in making him comprehend, that by particularizing every article of labour, expence, and profit, and marking the progreſs and minute circumſtances which attended his improvements, he would be much better enabled to form a preciſe and adequate judgement of their value; whilſt the wiſeſt man may ſuffer himſelf to be deceived as well as deceive others, if he truſts to the uncertainty and deceitfulneſs of memory (13).

But it is time to finiſh this digreſſion, and return to the detail of Kliyogg's obſervations on watering of meadows: he finds the water in moſſy grounds is very injurious to graſs, and dries up the roots entirely. Water loaded with gravel, may likewiſe be of the worſt conſequence to a meadow, ſo that the huſbandman cannot attend too carefully to this article, otherwiſe his lands may ſuffer more from overflowing than from drought. Nothing aſcertains the ſalubrity of water more than the production of creſſes, brooklime, and ſucculent plants. But when a river is choaked with (14) ruſhes, ſpear-wort, or moſs, that water will be deſtructive to vegetation.

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(13) An excellent remark! which cannot be too often repeated to all farmers. The experience ariſing from practical agriculture bears no proportion to that which is gained from the regiſter of practical agriculture. A farmer knows whether he gains or loſes, but in what articles? and in what proportions? How confined is his knowledge in theſe reſpects! *

(14) This is occaſioned by the ſeeds of moſſes and ruſhes, which the water propagates in its courſe. Thoſe of moſs ſoon riſe and multiply exceedingly, covering the ſurface of the ground and entangling

The rules neceſſary to be obſerved in ſluicing of lands, are, according to Kliyogg, to take particular care that the great ſluice and its dependent channels, be placed in a proper ſituation to diſtribute the water equally over the greateſt part of the meadow. The direction of the principal trench ought to run acroſs the moſt elevated part of the ground, in order to give a due inclination towards the collateral branches: nor ſhould it be cut too deep, which would prevent the inundation from being gradually extended over the whole ſurface. It is likewiſe eſſentially neceſſary to ſlope the trenches in ſuch a manner, that the water may be carried off with facility, and no part remain ſtagnant to occaſion putrefaction: the turf once injured, the meadow would ſoon become ſwampy and the graſs rank and unwholſome. It will alſo be neceſſary to change the trenches frequently, filling up thoſe firſt made, ſo that every part of the land may reap, in turn, benefit from this operation. Our cultivator conſiderably augments the vegetative properties of the water by rich mould, procured, as I have already mentioned, from green turf cut from eminencies in paſture or fallow land. This he throws into the principal head of water, ſo that the leſſer channels may imbibe and communicate fertility over the meadow (15).

The autumnal graſs which Kliyogg converts into manure, ſupplies him with a third method of improv-

tangling the fibres of the herbage and graſs, till they are ſtifled, without ſupplying any nouriſhing food in their room; for moſs never riſes high enough to be touched with a ſcythe. Or, if hay could be made of it, the cattle would not eat it. To obviate this misfortune, cinder aſhes may be ſtrewed, which will kill all kinds of moſs. And ruſhes may be extirpated if they are careful in drawing them out by the roots, and draining the ground that produces them.

(15) This is a good thought, but the benefit (on ſome ſoils) of caſting unſlaked lime into the ſtream would be much greater, and acquired at a much leſs expence *.

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ing his meadow, for he thinks it very hurtful to the ground to ſuffer cattle to graze late in the year (16). Independently of the loſs of ſo much manure, the beaſts break the turf, and in a rainy ſeaſon, which commonly happens in autumn, the impreſſion of their feet forms ſo many cells for the water; and this water congealing in winter, greatly injures the roots of the graſs. A new proof of the bad huſbandry of maintaining a diſproportionate number of horned cattle, which occaſions the farmer to let them devour every blade of graſs for their ſupport, and run the hazard of extracting from the earth all its nutritious juices, till, by degrees, the farm is entirely ruined.

The laudable ambition of Kliyogg is not ſatisfied with the improvement of his meadows, but ſeeks to extend his demeſnes, without, however, deviating from his grand principle, never to think of purchaſing more ground till he has carried the culture of what he poſſeſſes to the higheſt degree of perfection it is capable of attaining (17). How is it poſſible, ſays he, a huſbandman ſhould get through his annual rotation of work, unleſs he finiſhes the improvement of the old land, before he involves himſelf with the culture of new? Diſtracted with a confuſed multiplicity of labour, the augmentation of acres would only encreaſe his perplexity, without encreaſing his wealth. The fertility of an eſtate is always in proportion to the culture beſtowed; nay, it is even demonſtrable, that if a man doubles his number of

(16) This is moſt excellent advice: but through vaſt tracts of country in England, they ſuffer their cattle to remain in the fields all winter, and even feed the hay in the paſtures: there cannot be a more execrable ſyſtem of conduct *.

(17) I cannot read this work without expreſſing my ſurprize, that a book which certainly contains many ideas of culture, equal, at leaſt, to any that have been offered to the publick, ſhould have remained ſo long unknown in England. The moſt refined experience could not ſtart a juſter obſervation: it is a leſſon to all the farmers of every country in the world *.

acres

acres, and employs only the ſame number of labouring hands and the ſame quantity of manuring as when he had only half the number, that eſtate will clear leſs than it did before the additional purchaſe. Thus it is evident, a farmer may have too much ground as well as too much live ſtock. For our conviction, nothing more is required, than to take a ſurvey of an over-grown farm badly occupied, where, on lands which have all advantages of ſituation, we ſhall ſee their crops of hay and corn that will not produce more than a fourth part of what lands of the ſame quantity and quality afford, divided into equal allotments, amongſt the inhabitants of a populous village.

When Kliyogg converts one of his fields into a meadow, he always chooſes the beſt ſoil, and commences the work by clearing it of ſtones with the utmoſt aſſiduity. He then ploughs it and gathers the ſtones a ſecond time that lodge in the furrows, harrows it over, and when it is quite level and all the ſmall ſtones picked up in a third gathering, he ſows it with graſs-ſeed; nor is he very anxious in the choice of ſeed, for experience has taught him, that the difference of herbage depends entirely on the nature of the ſoil and the preparation of the ground. The ſame meadow that is matted with moſs and every kind of unprofitable beggarly weeds, will produce trefoil of the beſt quality when improved by manure, adapted to its nature (18). In this inſtance, we find a manifeſt

(18) Kliyogg, in this remark, diſplays his real experience. I have often made the ſame obſervation, but it ſhould be limited; for if the nature of perennial plants be bad, manuring will improve their luxuriance as well as that of the beſt vegetables. The following inſtance, mentioned by that excellent cultivator Sir Digby Legard, is a very ſtrong proof. "I have often obſerved fields "covered with white clover where paſture has preceded arable land, "without any perſon's remembering the ſowing of it; and often, "in an old worn-out meadow or paſture, a crop of this will ap-"pear after plentiful dunging. This fact of the white clover "ſpring-

nifeſt proof of the infinite wiſdom and goodneſs of the Creator. Let but the huſbandman fulfil his part of the obligation by induſtrious culture, and leave the reſult to Providence. The moſt wholeſome and nutritious plants will grow ſpontaneouſly; the winds will waft from diſtant fields the moſt uſeful and valuable ſeeds, which want nothing but a proper bed to mature them, whilſt noxious and cankerous weeds, not finding ſuitable nouriſhment, will wither for want of the juices appropriated for them. Till lately, Kliyogg never heard of artificial graſſes. The firſt account of them engaged his attention. The Phyſical Society remitted him ſome pounds of Flanders trefoil ſeed (*trifolium pratenſe purpureum majus. Ray. Hiſt.* 944), requeſting him to make ſome experiments. For this purpoſe he prepared a piece of ground near his houſe, in the manner I have deſcribed, and divided it into two equal parts; in one he ſowed the Flanders trefoil, in the other common graſs-ſeeds: both diviſions were manured in the ſame manner and carefully watered from the ſtagnant pools, accurately obſerving the progreſs they made. Kliyogg kept an eſtimate of the profit ariſing, and of the reſemblance

" ſpringing in great quantities on land, copiouſly manured, where " there was, before ſuch manuring, no appearance of it is very cu- " rious; but frequent in northern parts of England and in Scot- " land. It is not confined to manuring with dung; but the ſame " event follows, where a change of ſoil is made by lime or marle " laid on in great quantities. I have an account by me of an un- " common large crop, no leſs than three tons an acre being pro- " duced at Kedgely-Moor, in Northumberland, in conſequence of " a large quantity of lime being laid on ſome acres of black moor " land covered with heath: the heath was entirely killed, and this " great burthen of white clover ſucceeded, without any aſſignable " means of conveyance of the ſeed. I find from other accounts, " that the ſame commonly happens in the county of Galloway, " where great quantities of ſuch moor land have been lately brought " into cultivation. Very copious manuring with lime, dung, or " marle, appears there to deſtroy the heath, and produce white " clover." *Memoirs of Agriculture.* Vol. I. p. 366 *.

or

or diſſimilitude in fertility. In waiting the reſult, he made laſt ſummer, ſeveral other trials of the Flanders trefoil in ſmaller ſpots of ground, ſome richly manured, others of the ſame ſize in an unimproved ſtate. Theſe various experiments tended to convince him that this foreign trefoil, like the graſſes common to our own country, was more or leſs luxuriant according as the ſoil was more or leſs manured. In regard to the grand experiment to find the difference of produce from the feed of trefoil and that of common graſs, in ground where the culture and preparation are the ſame, Kliyogg declares he cannot diſcern any that is material. It is much to be wiſhed that ſenſible and unprejudiced farmers would take equal pains in making experiments on lucerne, ſain-foin, and other ſpecies of exotic graſſes, whoſe excellencies are ſo highly extolled in the preſent age, as by a juſt calculation of their advantages over our natural herbage, we ſhould be able to determine whether the ſubſtitution of them would anſwer. Some enlightened friends of agriculture have already informed me, that the trials they have hitherto made, fall ſhort of the deſired ſucceſs, and that they find it much more profitable to continue the old method of huſbandry, than to propagate theſe modern Dutch diſcoveries: for inſtance, the Flanders trefoil, which, in ſupplying a very ſucculent nutrition, excites cattle to feed immoderately. The conſequence of this repletion is a ſeries of very alarming diſtempers (19).

Kliyogg

(19) I ſhould imagine the only thing wanting to prevent this inconvenience, is a due regulation of the quantity of trefoil a beaſt may eat without hazard, and which never ought to be exceeded. A proportion not difficult to aſcertain, with the aſſiſtance of a little attention and experience. *Obſervations by the Society of Agriculture in Bretagné*, an invaluable collection, recommend, in ſeveral places, what, to me, appears an excellent method. " It had been remarked by the Baron de Pontual, that to " fodder cattle with trefoil only, heated them too much. A native

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Kliyogg made me attend to a circumſtance which may prove the deſtruction of a meadow if not corrected. This is when the plantane is ſuffered to predominate, whoſe large leaves ſo totally cover the ſurface of the ground that no other herbage can ſpring up (20). He pointed to my obſervation a meadow, where the plantane was ſo interwoven and ſpread over the ſoil as to engroſs all its nouriſhment, and reduce it to ſterility. The ſole remedy for this evil, in his opinion, is to plough up the meadow and ſow it with corn for ſome years; afterwards, by improving the ground as already deſcribed, it may be converted into meadow again. Let us now conſider Kliyogg's huſbandry in his own lands, which, in the diſtrict where he lives, it is the general cuſtom to ſeparate into three diviſions. Kliyogg has fifteen acres in each. The firſt allotment is for wheat; his rule is ſix loads

" of Flanders taught him to temper this heat by a very uſeful " piece of œconomy. Amongſt the Flemings, where the mea- " dows abound with this graſs, they make layers in their hay-lofts " ſix or ſeven inches deep, of ſtraw and trefoil alternately. The " ſtraw imbibes the ſcent of the trefoil ſo ſtrongly, that oxen and " horſes eat both, with equal avidity. By this means the value of " ſtraw becomes equivalent to that of trefoil, and the cattle are " preſerved ſleek and cool."

There is great probability likewiſe, that Kliyogg was unacquainted with the beſt method for the culture of trefoil. The ſame *Obſervations* inform us, " that it ſucceeded very well when ſowed " with oats, which is the laſt crop in rotation before the ground is " ſuffered to lie fallow. Preſident de Moutlue, who began to make " experiments in 1758, has had remarkably fine crops of oats. At " the time they were ripe, the trefoil was in great luxuriancy be- " low, about two feet in height. The manure ſtill remaining in the " ground after the firſt crops are mowed, and the ploughing neceſſary " for the oats, are equally beneficial to the trefoil. Experience has " convinced him, that with only the additional price of ſeed, a " man may have, for ſeveral ſucceſſive ſeaſons, a rich meadow of " trefoil, which may be mowed in moſt years twice, and in fa- " vourable ones three and four times."

(20) This is preciſely the caſe in England; but the narrow leaved plantane, called in the north rib-graſs, is an excellent paſture *.

of manure and ten buſhels of wheat or ſpelt (21), which laſt grain he commonly prefers, an acre. The produce is, in general, more than one hundred ſheaves, which, when threſhed, yield ſix ſacks of winnowed corn: the ſack containing ten buſhels or two coombs and a half. Thus the clear profit of an acre of land is three malters (22), twelve buſhels of corn, and full thirty bottles, or buſhels of ſtraw. The ſecond diviſion is ſowed either with rye, beans, peaſe, or oats. The allowance three buſhels and an half of ſeed an acre. He gathers from this eighty ſheaves an acre, which yield annually at leaſt five coombs of grain and forty bottles of ſtraw. The third diviſion remains fallow. Kliyogg has alſo ſome incloſures, which he ſows every year. Theſe are manured twice in three years, which he is peculiarly careful never to neglect, and conſtantly varies the grain every time.

His computation for ploughing is, a complete day's labour for two men and four oxen for each acre (23).

Purſuant to the cuſtom of the country, he gives the firſt diviſion three ploughings early in the ſpring, before the month of May, immediately after hay-ſeaſon, and at the end of harveſt. The ſecond diviſion, if it does not interfere with more material buſineſs, and can be accompliſhed without great incon-

(21) Spelt, a kind of baſtard wheat, which, in a good ſoil, becomes genuine.

(22) The Zurich malter contains four coombs of wheat. The coomb is divided into four quarters or buſhels, which, when preſſed down, is about 125 pounds weight.

(23) This is a remarkable fact. I have, in a former note, ſhewn, that a Zurich acre is but a little more than three roods Engliſh; conſequently this is very poor work for four oxen to perform, eſpecially under the eye of ſo induſtrious a man as Kliyogg. I conclude from hence, that the beaſts are very mean ones. I uſed oxen in Suffolk, and a ſingle pair ploughed me an acre a day without any extraordinary exertion. They coſt me 15l. a pair *.

venience

venience, is ploughed twice; at the concluſion of harveſt and before the commencement of ſeed-time. Light ſoils, ſays he, require to be lightly ploughed; and on the contrary, heavy clayey ground ſhould be ploughed very deep, that the fine fibres of corn may inſinuate themſelves with eaſe among the particles of the broken clods; but in a light ſoil, we muſt endeavour to preſerve ſufficient ſolidity for the roots to ſtrike. Wheat ſhoots ſtrongeſt when there is an interval between the time of ploughing and ſowing. Barley is moſt vegetative when ſowed immediately after the plough. Light lands are beſt for barley, but wheat thrives beſt on a ſtiff ſoil.

Kliyogg likewiſe obſerves, that whoever is deſirous of conſtantly plenteous crops, ſhould be ſenſible how very eſſential it is, frequently to vary the ſeed upon the ſame ground. Thus he is indefatigable in the ſearch of new; and is ſo thoroughly convinced of the importance and utility of this rule, that he affirms there is a very advantageous difference if he buys ſeed at a village only four leagues diſtant from his own. This remark is worthy the attention and inveſtigation of ſome curious naturaliſt.

Our induſtrious labourer beſtows on his arable lands a kind of manure, whoſe effects appeared ſingularly aſtoniſhing to me, when he took me into one of his incloſures a little before harveſt. A third part of this field, from a deficiency of hands and leiſure, had been that year neglected. I inſtantly perceived, tho' little accuſtomed to theſe minute obſervations, a very ſenſible difference between that part of the field which had been manured, and the other. Kliyogg imputed this difference to be one third loſs in the crop. The manure he made uſe of, was a ſmall gravel of a greyiſh hue, that ſupplied the want of marle, when compounded with a fertile brick-coloured ſand, natural to the ſoil. Kliyogg diſcovered veins of gravel running along the ſides of ſome barren uncultivated hills in

the neighbourhood, commonly on the ſuperficies, or a very few feet below it. In loading his carts, he throws aſide large ſtones, ſtrewing the fine part on light lands. This is one of the occupations on winter days, which the generality of huſbandmen devote to indolence, or at leaſt to domeſtick engagements of ſmall advantage. The deep ſnow that covers the ground during great part of the winter ſeaſon, greatly facilitates his work by the uſe of ſledges, and conſiderably leſſens the fatigue of the oxen. I ſaw him laſt winter in high delight at the appearance of a ſettled froſt, which gave him hopes of a good road for ſledges for ſome weeks. There ſeems a great analogy between the operation of this gravel and thoſe aſcribed to marle, if they are not indeed the production of marle itſelf which is diſcoverable among the ſmall particles of gravel. Kliyogg apprehends the ſalutary effects of this ſpecies of manure ariſes from the heat communicated to the earth: he alſo attributes to it the virtue of extirpating baneful herbs, and particularly a kind of *pædiculaire (rhinanthus criſta galli, Linnæus)*, a plant ſo deſtructive to barley, that when it gets the maſtery in a field there is little corn to be reaped.

By the aſſiſtance of this manure, Kliyogg has converted the worſt land imaginable into excellent corn fields. He lately bought near an acre of ſterile ground for 4l. 14s. 6d. and hopes to make it worth 21l. 17s. 6d. within a few years: a thing by no means improbable, as he has already given ſpecimens of equal improvement, on ſoils that had been judged incapable of fertility. Alterations ſo aſtoniſhing, prove, in a forcible manner, how much foundation there is for his aſſertion, that we ought to attribute it to the lazineſs and unſkilfulneſs of the peaſants, if our country does not produce even a ſuperfluity of corn!

Dreſſing lands with fine gravel is not a new diſcovery: the negligence of the peaſants ſeems the only reaſon

reaſon it is not more practiſed. Theſe alledge, by way of juſtification, that they will not pretend to diſpute its efficacy for a few years, but after a certain term, the ground will be as much, or rather more impoveriſhed, than it was originally. We freely grant the operation of this manure to be limited to ſuch a period, when it ought to be renewed, or ſome other ſubſtituted in its place: but is not this the caſe with every improvement in huſbandry? It is only as the reward of conſtant and diligent labour, that the earth yields her treaſures to man. Kliyogg ſupports all his arguments on this principle, which has never deceived him. The fortunate ſucceſs with which heaven has bleſſed his induſtry, encourages him, with aſſiduous application, to draw freſh proofs, rationally deduced from new experiments in agriculture. The effects of gravel lead to this general maxim, that every ſpecies of earth may be inſtrumental to the improvement of another of oppoſite qualities. The diſcovery of a ſtratum of earth hitherto unknown to him, is as great an acquiſition in his eyes, as a purſe of gold in thoſe of a miſer.

Kliyogg has ſtill another method of culture in his arable lands. He beheld with regret, the cuſtom of raiſing high ridges, or banks, to prevent inundations over the corn, whoſe ſteep ſlope occaſioned the roots to be overflowed in the furrows between, which had a very bad effect. To obviate this double injury, he changed theſe banks into covered trenches, about two feet in depth, which he filled half way with large ſtones, covered with pine branches, and ſpread over with the earth taken out of the trenches. In this manner he regained ſo much loſt land, which produced as good corn as the reſt of the field (24).

(24) This is the famous method of draining all ſorts of wet ſoils in England. I do not remember meeting before with any mention of them in the French authors. It is very extraordinary that this peaſant,

By a proceſs nearly reſembling this, he has made a very fine hemp field of a piece of ground ſituated in a bottom, on the ſide of a great road, which, after heavy rains, was conſtantly overflowed by torrents, and had been given up as unprofitable. Our wiſe cultivator has appropriated a pretty large incloſure to the culture of leguminous ſeeds, ſuch as French beans, peaſe, cabbages, &c. Theſe kinds of pulſe ſuffice for the maintenance of his family during the greater part of ſummer; a branch of œconomy that diſtinguiſhes him from the peaſants of that country, who, excepting beet, cultivate very little vegetable food, which obliges them to conſume a greater quantity of bread and flour, and diminiſhes, in proportion, the only means they have of procuring money. To leſſen, in ſome meaſure, the expence of improvement, his children are entruſted with his kitchen garden; an eaſy taſk, adapted to their ſtrength, which will train them gradually to the performance of more toilſome work.

I paſſed over in ſilence, his method for the culture of turneps after rye-harveſt; nor ſhall I expatiate on his manner of pruning fruit-trees, as in theſe two articles there is nothing uncommon; but I ought not to omit his rules for the culture of potatoes, as he is the firſt man in the village who has made them an eſſential object of œconomical attention; the other peaſants are ſatisfied with having ſome beds of them in their gardens. The excellent properties of potatoes and their great utility, have given them, in the opinion of Kliyogg, a very deciſive preference over all other roots. One acre produces two hundred buſhels. The daily conſumption in his family is one buſhel, and his œconomy in this article ſaves a coomb of corn in the ſpace of three weeks. Thus he computes that twenty buſhels of potatoes are equivalent to one coomb of corn.

peaſant, enlightened only by nature, ſhould unite in his little farm, ſo many of the beſt practices of European huſbandry! *

According to this calculation, an acre planted with potatoes, is as profitable as ten coombs of corn; whilſt an acre of the beſt land will ſcarcely produce four malters of ſpelt, which, at the higheſt price, and in the beſt years, is about the value of ſix coombs of wheat; conſequently the comparative value of an acre of potatoes to an acre of corn, is, as ten to ſix: a very eſſential difference! We may likewiſe add, that this root remains in ſecurity under ground, exempt from thoſe dangers which plants and grains are expoſed to from the variations of ſeaſons. Neither the nipping froſts in ſpring, ſnow, nor hail, that ſo frequently diſappoint (25) and deſtroy the labours of the huſbandman, can injure the growth of potatoes. In promoting their culture we find a new reſource againſt national alarms, from the well-grounded hope that a more enlarged and practical knowledge in rural œconomy, may, by degrees, releaſe us from that dependence on our neighbours the unavoidable conſequence of neceſſity. Let the culture of potatoes once become general, the induſtrious peaſant will procure, from a very ſmall piece of ground, a comfortable ſubſiſtence for his family; nor will he be liable to diſappointment even in unfriendly years. He will cultivate, within a trifle, the ſame quantity of arable land, and will be able to carry to market the profits of his harveſt almoſt entire; whilſt, before this diſcovery, he expended a very conſiderable part in his houſhold. This advantage is ſo manifeſt, that the culture of potatoes is already common in many diſtricts of Switzerland, particularly in thoſe whoſe vicinity to the Alpes expoſes them moſt to the inclemency of winter. I apprehend it will not be thought

(25) Yet there are inſtances where a hail-ſtorm has injured the green ſtalks above the ground, before the potatoes were arrived at a certain degree of maturity; which, by preventing farther growth, entirely deſtroyed the crop:—but this is very rare.

a uſeleſs proceſs, if we enter into a circumſtantial detail of Kliyogg's huſbandry in this eſſential branch.

When he has ſelected a proper ſpot of ground, it is prepared in autumn by ploughing, after firſt ſpreading ſome tumbrels of marley gravel, eſpecially if the ſoil is ſubject to pernicious weeds. Towards the following ſpring, he lays on ten loads of manure an acre, and ploughs a ſecond: he then ſets the potatoe in the furrows, two or three together, leaving a foot's ſpace betwixt. The very large ones may be cut in pieces. His allowance is ten buſhels an acre. Thus planted, the field is covered again with manure, and left in that ſtate fifteen days, when it is harrowed over. A dry ſeaſon is judged beſt for planting, it is more likely to kill the weeds, for the ſucceſs of potatoes chiefly depends on the aſſiduity of the huſbandman in clearing the ground of noxious plants. For this reaſon, great attention is required when the leaves of the potatoe ſhoot half a foot above the ſurface, to have it carefully weeded. When this is done, Kliyogg waters it from his pools. If a freſh crop of noxious plants ariſes, there is a ſecond, and ſometimes a third weeding is beſtowed. In the autumn, about a fortnight after ſeed-time, the potatoes are drawn out of the ground. He begins to gather in his harveſt by mowing the tops cloſe to the ground: if this can be done a month ſooner it anſwers better, in ſupplying the cattle with wholeſome and well-taſted forage (26). The ground is then ſtirred with a pitch-fork to looſen the potatoes, which are gathered in baſkets, and then carried home in ſacks, where they are kept in a cellar to ſhelter them from froſt: for potatoes once frozen rot when a thaw begins. They may be preſerved likewiſe in trenches in very dry ſoils as turneps are, uſing the precaution to put ſtraw over, and then to

(26) Howeverwholeſome it may be, it is by no means well taſted: and I know from experience, that cattle, while they are ſupplied with the common ſorts of food, will not touch them *.

earth

earth them up. When the crop is carefully got in, tillage is repeated, and in following the plough, a great number of potatoes that lie in the ground are gathered up. It is then ſowed with barley or rye, and when the harrow paſſes over, there is a ſecond gleaning of potatoes, which are ſtill numerous. Nor is it poſſible the utmoſt care can prevent many from ſtill remaining, which muſt be drawn out as ſoon as the tops appear. Kliyogg is convinced by experience, that the crops of rye are as good ſown after potatoes, as in fields where there has been only corn. The ſame land may be allotted the third year either to potatoes or wheat. Kliyogg gives the preference to the former, and approves of planting them alternately, in all his corn-fields, from a conviction that the culture they require contributes greatly towards meliorating the ground by the extirpation of baneful vegetables; and that varying the productions encreaſes the fertility.

Kliyogg, as I have already obſerved, allows his family a buſhel of potatoes a day. They are boiled till ſoft, and brought to table, where each perſon peels his own ſhare, and eats it with ſalt: ſometimes they ſtew them with meat, taking care to pare them firſt, as the cows and pigs find the parings very wholeſome. Our huſbandman determined to try if bread could be made of potatoes, but had no ſucceſs whilſt he uſed no other mixture; but with the addition of ſome of the flour with which they made houſhold bread, they anſwered his purpoſe: his method is as follows. Pare and cut them into the kneading-trough; pour in boiling water enough to cover them; bruiſe them till thoroughly ſmooth: neither time nor pains ſhould be ſpared to perfect this operation, becauſe it is eſſential to the making of good bread, that there are no lumps. They ſometimes take equal parts of maſhed potatoes and common dough; ſometimes a third or fourth part: the bread muſt be exceedingly well kneaded,

kneaded, and is then very excellent. Nor is it found leſs nouriſhing or invigorating to the conſtitution than when made entirely of corn. Kliyogg dried ſome potatoes in an oven, and then had them ground, in order to ſee if the flour would make bread without corn, but the experiment has been hitherto unſucceſsful (27). To finiſh the circumſtantial deſcription, I purpoſed giving of Kliyogg's huſbandry, there ſtill remains an account of the paſturage and woods.

Paſture ground, in this country, is ſcattered amongſt the woods in detached pieces. The ſoil is in general extremely bad, ſo that the cattle find but little ſuſtenance from rattle-graſs, milk-thiſtle, and fern. There is great probability that theſe ſpots of ground were formerly covered with wood, which has been felled, and according to the pernicious cuſtom, too prevalent in Switzerland, cattle were immediately turned in to feed. Thus the tender ſhoots that would have ſprouted again, and thrown forth freſh branches, have been nibbled and broken down by the beaſts, till, by degree, the ſap became totally deſtroyed, and theſe waſte grounds have been appropriated to paſturage. I have taken notice of the ſmall advantage to be reaped from them, when I mentioned the application of Kliyogg in augmenting his compoſt dunghill. He at firſt treated his paſtures like other peaſants. Sowing them with wheat or barley every ſixth year, and every ſeventh with oats, at all other times the cattle grazed there; but he was ſoon ſenſible, that by perſevering and aſſiduous labour, a much more conſiderable advantage might be gained by turning them into fruitful cornfields.

(27) Potatoes are one of the moſt valuable preſents we have received from America. They furniſh the country people with a pleaſant, wholeſome, nutritious kind of aliment, favourable to population. A great part of German Lorraine find them a conſtant ſupport; and the villagers there are ſtout, well-made, and of exceeding robuſt conſtitutions. I have ſeldom ſeen diſtempers amongſt ſoldiers, when they had potatoes to boil in their kettle.

The

The practical part was a long time obliged to be omitted for want of labouring hands, and the greater proximity of his other grounds preſented ſo many immediate objects of cultivation, that he could ſcarce devote a moment to his paſtures. It is only ſince his children have made a beginning to aſſiſt him, that he has applied his induſtry towards their improvement. The firſt ſtep is digging a foſſe about three or four feet broad and two or three deep, caſting the earth from it in ſuch diſpoſition as to form a kind of parapet bank, which remains two years in that ſtate, expoſed to the weather; it is then made uſe of to ſpread on the moſt barren ſpots of the paſture, and to fill up ſmall inequalities of ground: where there are large holes he fills them with ſtones before he covers them with mould. The land is then dreſſed with gravel and manure according to the rules obſerved in his corn-fields, and is ſo amazingly improved, that, in general, it affords the beſt crops he has. One of theſe paſtures he made choice of for hemp, and it is well known the beſt ſoil is always ſelected for that purpoſe. He delights more in this part of his eſtate, becauſe he is at free liberty to farm it as he pleaſes, without thoſe reſtrictions that confine him to eſtabliſhed cuſtoms in the culture of common fields, dependent, in ſome reſpects, on the village of Wermetſchweil.

Five acres of paſture land are ſet aſide for planting, which lie moſt contiguous to his woods. He leaves to nature the care of ſowing pines and firs, not having been able to gain proper information in regard to planting trees. A ſpecies of knowledge which our country is unfortunately little acquainted with. Woods in Switzerland are regarded as wild uncultivated ſpots ſelf ſown, which require no other care and attention than to cut them down at a proper age. To this falſe prejudice, the offſpring of indolence and ignorance, we may attribute that ſcarcity of wood for fuel,

fuel, which is more ſenſibly apparent every day. I remarked juſt now, that the paſturage dependent on the village of Wermetſchweil, had its origin from new-felled parts of the foreſt, which the cattle had rendered incapable of bearing wood by wounding the young ſhoots. To the ſame cauſe is owing thoſe deſart tracts, ſometimes of conſiderable extent, which are to be met with in our foreſts, in places where the ſoil and expoſure are remarkably favourable. Happy ſhould I be, were I capable of awakening the attention of my countrymen to an object ſo eſſential to publick utility, whoſe neglect will, in time, infallibly be productive of ruin.

Kliyogg beſtows a kind of culture on his woods, but with a view very different from what I ſpeak of. His prime motive, as evidently appears, is the encreaſe of manure; for which purpoſe, he collects, with the utmoſt induſtry, ſmall branches of pines and firs, dead leaves and moſs. It is with this view alſo he carefully roots out all deſtructive plants, unloading the young trees from time to time of ſupernumerary foliage, branching them pyramidically almoſt to the crown; a method which contributes, in no ſmall degree, to accelerate their growth and augment the beauty of their trunk. The neighbouring farmers reject this manner of treating trees as extremely prejudicial, but Kliyogg troubles himſelf but very little about their approbation ſo long as he is convinced his pines and firs are equal, if not ſuperior in growth to thoſe of his neighbours. It muſt be allowed, that, on the firſt view, his woods appear thinner, from the openings viſible between the trunks where the branches are taken off; but after a more accurate examination, I found his opinion well founded. I did not ſee any young firs that ſeemed withered and decayed, though the branches of all were conſiderably lopped: he made experiments ſome years ſince how far he might carry the operation with ſafety: he reduced the branches

of

of ſo many trees as the compaſs of a quarter of an acre afforded, leaving only three knots on any; the trunks were from ſix inches to a foot in circumference. He did not loſe more than four; the reſt were, honeſtly ſpeaking, a longer time than uſual in making their ſhoot, but this was greatly compenſated for, by the extraordinary vigour of the appearance that followed. It did not eſcape the obſervation of Kliyogg that every year produced a new head to the fir-tree till arrived at perfection; from thence he inferred that the lower circle might be taken off every year without injury to the tree; and that if pruning had been omitted ſeveral years together, the ſame number of circles might be taken off with confidence (1). I know this practice is contradictory to the generally eſtabliſhed theory of the vegetation of trees and the experience of the moſt diſtinguiſhed naturaliſts of the preſent times; ſuch as Hales, Bonnet, du Hamel, who have demonſtrated that trees receive their principal nouriſhment from the humid particles with which the air is impregnated, and which the leaves draw in by ſuction. Yet the ſucceſs of theſe experiments made by Kliyogg, ſeems to point out one exception at leaſt, in favour of ſuch aromatic and reſinous trees as have pointed branches inſtead of leaves, which may be pruned with leſs hazard than other woods. I acknowledge there has not been ſufficient time for a courſe of experiments capable of being placed in oppoſition to maxims hitherto deemed inconteſtable; but at the ſame time I cannot help thinking that the opinion of a man, who diſplays in ſo many inſtances the moſt judicious diſcernment, and whoſe obſervations are ſo totally free from prejudice, merits a degree of

(1) This method of pruning fir-trees I have before heard of anſwering greatly: but how Kliyogg's pruning his woods for manure can be advantageous I can conceive only by ſuppoſing the Swiſs woods and our Engliſh ones totally different *.

attention

attention which may ſerve to animate us in the purſuit of more ample diſcoveries (2).

Thus far may be affirmed with certainty, that the roots ſupply the tree with a vaſt collection of nutritious juices which are communicated through proper tubes to all the branches, whether their number be great or ſmall. If, then, according to the method propoſed, the number of branches are conſiderably diminiſhed by annual prunings, this collection of ſap will be employed almoſt entirely to the benefit of the

(2) The reader, perhaps, will not be diſpleaſed with obſerving the agreement between what is ſaid above, on the nature and culture of trees, with ſome paſſages drawn from the article arbre in the Encyclopedie. "The roots of trees, and even of plants in "general, are analogous to the ſtomach in animals. It is there "the firſt and principal preparation of the ſap is formed.

"The culture of a tree, by pruning away part of its branches, "contributes more than any other method of induſtry to their "luxuriancy; ſo that it may be truly ſaid, the more limbs they "retrench in vegetable life, to a certain point, the more they "multiply. Thoſe who have never ſeen a tree entirely ſtripped of "its branches to the very root, will conſider it in this mangled "ſtate as incapable of recovery, and fit only to be hewn down: "yet if an oak, an elm, a poplar, or any tree, whoſe roots riſe "in a perpendicular direction, is ſtripped of its branches from "top to bottom, it will throw out from the amputated parts near "the top, an infinite number of buds, which burſting into leaves "round the head of a tree thirty or forty feet in height, form a "ſtately crown of thick branches that almoſt conceal the body of "the tree. In the ſame manner, a perſon who firſt beholds a tree "that has loſt its head by a hurricane, or an ax, cloſe to the neck "of the branches, would naturally conclude for ſix months after, "that it was a dead trunk, whoſe vegetation could never be re-"newed. But how great the ſurprize to obſerve a tree in theſe "circumſtances ſhooting forth below the wounded part, a profu-"ſion of young branches that form another head! This ſhews the "almoſt inexhauſtible reſources of vegetable nature! For it may "be confidently aſſerted, that from the extremity of the branches "to the root of the tree, there is no perceptible ſpace that does "not encloſe a portion of embryo life ready to appear, whenever "the ſituation of the tree requires an extraordinary exertion of "the ſecret ſprings of vegetation."

trunk

trunk itſelf (3); and a tree that is pruned with diſcretion at a proper ſeaſon, will encreaſe in ſize. I obſerve farther, that the effect of a conſtant attention to clearing the ſoil from weeds, is, the trees throwing up a vaſt number of ſuckers; whereas in the ſame ſoil, when covered with moſs and briars, the young twigs are ſo entangled it is impoſſible they ſhould make their way; and theſe ſuckers furniſh a perpetual ſupply of materials proper for manure, ſo that he regards his woods as reſources ſo much the more valuable, as he draws annually from every acre two load of litter for his ſtalls.

The more attentively I examine the œconomical ſyſtem of our rural philoſopher, which I have endeavoured to explain, the more I am confirmed in my opinion, that if we are not ſupplied at home with corn for our ſubſiſtence, it ought much leſs to be imputed to the ſterility of the ſoil, than to the falſe maxims introduced, co-operating with the ſloth and inattention of our huſbandmen. I conclude farther, that the heavy weight of debt which many of the peaſants ſink under, is not an inſurmountable objection to the re-eſtabliſhment of agriculture. We have ſeen in the inſtance before us an eſtate, where appearances denounced ruin and decay, with few natural advantages, and loaded with a conſiderable mortgage: yet in a few years we ſee this very eſtate improved to a height almoſt incredible, yielding very near double the crops of corn and hay it formerly produced. Some of Kliyogg's neighbours, who are far from being partial in his favour, have aſſured me, that when he engaged in his undertaking, the lands which ap-

(3) Ergo, cut a man's arms off and you will encreaſe his height amazingly! In theory, and according to my obſervation, all this reaſoning is falſe. How comes it that pollard trees (thoſe whoſe heads are regularly cut off for faggots) do not near equal, even in girt, good timber ones? Even the ſize they do attain is deformed and odious *.

pertained

pertained to him were ranked among the worſt; and that now in proportion to their extent they always produce the fineſt crops in that diviſion. They likewiſe regarded his enterprize, as I have before obſerved, as the moſt raſh imprudence which could not fail, in a very ſhort time, of involving the two brothers in deſtruction, whom they expected a ſtatute of bankruptcy againſt every day. This concluſion was not altogether the reſult of envy, which is ever ready to calculate the poſſibility of another's ill fortune. I am greatly miſtaken if all indifferent perſons would not have pronounced the ſame ſentence on the following queſtion. Whether a family, conſiſting of four parents and eleven uneducated children, could be comfortably ſupplied with the neceſſaries of life from an eſtate valued at ſcarce 875l. which muſt pay annual intereſt for 547l. 6s. A queſtion that the event has, however, determined in favour of the proprietors, thanks to the activity and wiſdom of this extraordinary man.

I will endeavour to render the fact ſtill ſtronger by calculation, in hopes of exciting, as far as I am able, the emulation of all good farmers.

Fifteen acres ſown without, produced 1500 ſheaves, which afforded ſixty buſhels of unwinnowed corn; or 56 malters 4 buſhels.

The price of wheat in Switzerland is at leaſt 17s 6d. the malter; ſo that the whole product amounts to (4) — —	£. 48	4 4
Fifteen acres ſown with rye, at five coombs an acre, yielded 75 coombs, which at 8s. 9d. the coomb, is	32	16 3
Total reimburſement —	81	7

The

(4) As I am unacquainted with theſe meaſures, we muſt conſult the proportions. Theſe 15 acres are about 10½ Engliſh, which producing 48l. 4s. 4d. is at the rate of 4l. 11s. 8d. per acre:

	£.	d.	s.
The tythe of ſixty buſhels of wheat, amounts to ——	4	18	6
The tythe of ſeventy-five coombs of rye is —— ——	3	5	7
Nine malters, ſix buſhels of wheat for ſeed, allowing ten buſhels per acre	8	3	9
Thirteen coombs of rye, allowing three buſhels and a half per acre —	5	13	9
Intereſt of 547l. 6s. at four per cent.	21	17	6
Rent of a meadow —— ——	4	16	3
Seven loads of ſtable manure, and ſix tons of turf aſhes — —	2	3	9
Total expence — —	50	19	1
Clear profit — — —	30	1	6

If I have omitted the wheel-wright, the collar-maker, the farrier, in the article of expence, I have likewiſe omitted the profits ariſing from the waſte ground converted into good ploughed land in the article of reimburſement; which, as I have already obſerved, produces corn, potatoes, hemp, and a variety of leguminous plants for the uſe of the table. His orchard likewiſe ſupplies him with fruit, his cows with milk and butter, his hogs with bacon. An accurate examiner of this eſtimation will obſerve, on the other ſide, the apparent hazard to a huſbandman of unavoidable ruin, by engaging in the improvement of an eſtate ſo badly circumſtanced, had he not been endowed with an uncommon ſhare of intelligence and activity. Theſe waſte and uncultivated fields had ſcarcely afforded, in the moſt plentiful years, to an idle unſkilful farmer, the moiety of Kli-

acre: a conſiderable produce for ſo ſmall a farm to yield; but we muſt artribute it to the induſtry of its excellent cultivator and his ample manurings. The rye is 1l. 3s. 6d. per acre, which is a good crop *.

yogg's harveſt, whilſt more money had been expended for the payment of labourers, than, according to the above calculation, he received in profit. The ſurplus of the year is always employed in the continuation of improvements, or in new acquiſitions of land. This he regards as a more advantageous method than liquidating the mortgage upon his eſtate, as he can make much more intereſt by employing 4l. 7s. 6d. in agriculture, than the four per cent. he pays (5); and he conſiders the reciprocal convenience it is to a rich citizen to have his money on good land ſecurity. The only anxiety he feels is, leſt any accident ſhould interrupt the regularity of his annual payments. Senſible that the time approaches, when the health, ſtrength, and vigour of his children will lend aſſiſtance to his labour, all his plans tend towards aggrandizing his eſtate, that his poſterity may, by his example, be animated to procure, by indefatigable induſtry, an equal ſhare of good fortune, and as perfect contentment of mind as their anceſtor enjoys.

What is moſt amazing, and merits our particular attention, is, that all theſe improvements are effected with ſo few hands: a family of four adult perſons, two of them women, who have few hours to ſpare from domeſtic employments, and the care of educating and working for their children! An inference naturally ariſes, that poverty of ſoil is not the neceſſary conſequence of want of inhabitants. It is not the

(5) This maxim of conduct, which is ſo very unuſual in œconomical minds, ſhews the ſtrength of Kliyogg's ideas. It is the misfortune of thoſe who ſee an object but in one light; who regard the paying of mortgages as the firſt aim, to apply their money to an intereſt of four or five per cent. when they might eaſily command ten or twelve. The one, it is true, is an uncertain, the other a certain income: but how come ſpirited improvers, manufacturers, merchants, &c. to trade on borrowed money? Not becauſe ſuch a conduct is totally free from objections, but becauſe the advantages more than balance ſuch objections. That mind which beholds nothing but difficulties and objections is mean and contracted: it is an habit that marks a little ſoul *.

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deficiency of labouring hands, but the progreſs of ſloth and indolence which ought to alarm our fears: it is this which induces the idle part of our people to prefer the leſs toilſome, but more precarious works of the manufacture to the rough, but more manly exerciſes of the huſbandman. The extravagant diſſipation of the wealth of our artificers affords another ſource of calamity which is daily augmenting.

We muſt neceſſarily conclude from theſe conſiderations, that before agriculture can be brought to perfection in this canton, a thorough reformation of manners muſt be introduced. When the adminiſtration by their zeal and ſolicitude for the welfare of the ſtate ſhall find their patriotiſm rewarded, by rekindling in the breaſts of the peaſants a lively ardour for rural occupations, it will then be the proper time to think of adopting the new huſbandry, and exchanging the ancient modes of cultivation for a more perfect ſyſtem, eſtabliſhed on experimental demonſtration. Our philoſopher Kliyogg is invariably of this opinion. "You cannot conceive, Sir," he often repeated, "how many grievances would be redreſſed, if the "government and the labouring hand mutually con- "curred in promoting the general good. Our eſtates "want only to be cultivated with more underſtand- "ing and induſtry to ſupply a ſufficient quantity of corn "for our uſe; but unfortunately we err greatly in "our ſentiments on this ſubject. The peaſant is ſel- "dom enlightened enough to diſcern his real advan- "tages. It muſt be then from the magiſtrate, who "is appointed by the ſtate to watch over the good of "the community, that we can hope for relief. It is "they who ſhould preſcribe to cultivators the beſt "methods of huſbandry, and exert the authority "lodged in their hands, to oblige the idle to work "or puniſh their obſtinacy. The public officers "ſhould attentively inſpect the conduct of every in- "dividual, leading back to their duty ſuch ſubjects

" who have deviated from it, by reprimands, me-
" naces, and ſalutary correction. The clergy might
" be peculiarly inſtrumental in this laudable work,
" would they be only more aſſiduous in admoniſhing
" their pariſhioners, either from the pulpit, or in their
" paſtoral viſits, to the uniform practice of the du-
" ties of chriſtianity: would they inculcate without
" ceaſing, that the eſſence of piety conſiſts in exact-
" ly performing towards our neighbours what juſtice
" dictates, or in other words, to render to every
" one his due. Theſe gentlemen have commonly a
" great deal too much learning in their ſermons.
" They amuſe their imaginations with tedious expli-
" cations foreign to the text, which the bounded
" ideas of the peaſant are incapable of comprehend-
" ing, inſtead of informing him in the moſt perſpi-
" cuous and ſimple manner how he ought to regu-
" late his conduct. Hence it follows, that the villa-
" gers (far the greater part of them) imagine they
" have fulfilled all that religion requires, in going to
" church, ſaying their prayers, and ſinging of pſalms!
" and that they may indulge themſelves with impuni-
" ty, in luxury (6) of apparel, and exceſſive gluttony in
" eating and drinking. They begin by diſſipating
" their patrimony, and end by defrauding their neigh-
" bour. There is, in my opinion, ten times more
" evil in cheating a man of a ſingle farthing, than in
" omitting to hear a ſermon. None have a right to
" expect a benediction from heaven but thoſe whoſe
" faith and probity are irreproachable, and their in-
" duſtry indefatigable, who earn their bread by the
" ſweat of their brows! A diligent huſbandman does
" not know what a bad year is, nor ſuffers the ſere-
" nity of his mind to be ruffled by ſtorms and tem-

(6) Many readers may be ſurprized to hear peaſants accuſed of luxury in apparel; but thoſe who have been in Switzerland, are ſenſible how much the women, in ſome diſtricts, particularly the unmarried, merit this reproach.

" peſts.

" peſts. An indolent one, on the contrary, expects " all from Providence, and complains of the partia- " lity of fortune, becauſe his harveſt is worſe than " his more induſtrious neighbours. The bailifs of " the diſtrict, ought, on their ſide, to enforce cor- " poral puniſhments and pecuniary mulcts on thoſe " perſons who refuſe to labour, notwithſtanding the " exhortations of the clergy. For this purpoſe, they " ſhould make frequent and regular circuits in their " diſtrict, and examine accurately the culture of the " farms: they ſhould diſtinguiſh and reward thoſe " amongſt the ſubordinate huſbandmen who give the " moſt evident proofs of labour and application, " whilſt they ſhould treat with the utmoſt ſeverity, " ſuch as are notorious for lazineſs and inactivity. " Good God!" exclaimed he, " what would be the " proſperity of theſe cantons, if ſuch meaſures were " purſued! and what an abundant enjoyment we " ſhould have of all the neceſſaries of life!"

Kliyogg exerciſes all the duties of the maſter of a family, though he is the younger brother. He who has the priority of birth, has a ſufficient degree of underſtanding and reaſon to acknowledge the ſuperiority of his brother's genius and talents, and to reſign, in conſequence, the ſole direction of every thing to his adminiſtration, ſatisfied with ſeconding that ardour and activity whoſe example appears ſo excellent. In admitting the ſyſtem Kliyogg has formed of the obligations of the head of a family, few men would be tempted to envy him that honour. According to his rules, the maſter is the firſt to commence all ſorts of work, and the laſt to leave them. The very eſſence of his authority conſiſts in being a living example to every individual of his family. " With- " out this," ſays he, " all efforts are vain, all cares " are uſeleſs: the maſter of a family may juſtly " be compared to the root of a tree, which gives " it life and ſtrength: if the root ceaſes to vegetate,

" the tree, however healthy before, muſt periſh with " it." With what confidence can a maſter exact of his ſervants to labour with unrelaxed ardour, when he himſelf is the firſt to diſcover marks of fatigue and laſſitude? With what expectation of obedience can he regulate and order the buſineſs of the day, when his labourer underſtands how to methodize it better? Such a maſter will be the ſport, the jeſt of his domeſticks; and if his ignorance is accompanied with obſtinacy in the execution of his orders, however inconſiderate, to obey, becomes an intolerable burthen. On the contrary, if the intellectual faculties of the maſter are evidently more enlarged; if it is he who ſets the moſt induſtrious example, there will not be a ſervant in his houſhold but will glory to emulate their maſter's conduct. I was requeſted by a particular friend, continued Kliyogg, to ſhew his ſervant my method of manuring with marley gravel. This lad, ſays he, does not want capacity, and is, as you ſee, ſtrong and robuſt; the misfortune is, he does not always fancy himſelf able to work. I took the lad into the field with me; he ſhared my fatigue early in the morning, and worked cloſe by my ſide late in the evening. He ſeconded my labour better and better every day, and I could not avoid admiring the dexterity and diligence of his behaviour. The next time I ſaw my friend, I could not forbear obſerving the great injuſtice he did his ſervant in accuſing him of idleneſs, for I had never ſeen any body ſo remarkably indefatigable. He proteſted to me, on the contrary, that whenever he went to overlook his labourers, he always found him unemployed. Is he equally idle, ſaid I, when he is to work in the ſame ſpot of ground with yourſelf? That is a point, replied my friend, I can't determine. I hire him to do the heavieſt part of the buſineſs, in order to be exempted from too great fatigue myſelf: all that ſeems neceſſary for me to undertake is, to give proper directions, and to have

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an eye to their execution. You regard the rougher part of manual labour, interrupted I, as a painful employment? I at leaſt think, ſaid he, it is permitted us, when we are rich enough to afford it, to enjoy a reputable and honourable exemption from it. What difference would there be were we denied this privilege between opulence and poverty? And where would be the advantage that heaven has diſpenſed a larger portion of wealth? If this is your way of thinking, I replied, it no longer amazes me that your ſervant is idle during your abſence, for, fairly ſpeaking, is it not natural that every one ſhould be ſolicitous to paſs his time as comfortably as he can? But I find we think in a very different manner; I am never more ſatisfied and happy than when I am working myſelf; and I am quite a convert to your way of thinking, my dear Kliyogg, purſued my friend, from a ſenſe that it is founded on reaſon! I will never, for the future, complaiſantly liſten to my wife's opinion, when ſhe perſuades me not to haraſs myſelf ſo much, tells me I have enough to live upon, and am not under the neceſſity of ſhortening my days by hard labour!

Kliyogg no ſooner forms a reſolution, whoſe propriety and rectitude he is convinced of, than, with unconquerable firmneſs, he inſiſts that all the family ſhall concur in it; and when he regards any cuſtom as pernicious, or even of no real benefit, he obliges every body to reject and abſtain from it. It is one of his principal maxims in farming to begin by extirpating all baneful and uſeleſs weeds before he attempts to mend the ſoil; otherwiſe, manure, inſtead of being advantageous, will only ſerve to multiply thoſe ſpungy plants which ſuck all nouriſhment from the crop. On the ſame principle, he ſays, a houſe cannot make a decent appearance, where idleneſs, luxury, and diſſipation are predominant. Till theſe are baniſhed proſperity cannot fix her abode. From

this perſuaſion he made uſe of the moſt vigorous efforts for exterminating all bad habits which had crept into his family. Many prejudices had he to encounter, many contradictions to cope with from wife and ſiſter, whom he found great difficulty in convincing they ought to rectify domeſtic abuſes, which long habitude had, in ſome meaſure, rendered ſacred; yet at length his fortitude triumphed over their reſiſtance. The applauſe and approbation his œconomic improvements met with from ſome of the principal perſons in the canton, contributed not a little to reduce to reaſon theſe inteſtine fermentations. At preſent concord preſides at his board, and there ſeems but one heart and one will. So true is it that the encouragement with which government honours the ſubjects who diſtinguiſh themſelves by uſeful diſcoveries, or beneficial examples, makes an impreſſion on others, and induces them to endeavour at imitation.

Kliyogg kept the only tavern there was in the village, from which there reſulted, in appearance, conſiderable profit towards houſe-keeping. A more accurate examination ſoon convinced him this was a miſtake: he ſhuddered, only at the thought of the bad impreſſions and dangerous examples his children would receive from the gueſts who frequented his houſe; the greater part of whom waſte in a tavern that time which is moſt precious for work, wantonly diſſipating the money which ought to be employed to the advantage of their domeſtic affairs, till their ſtrength is enervated, their underſtanding and reaſon totally degenerated, ſo that they are incapable of applying to the occupations or duties of life. Theſe reflexions led to a determined reſolution not to allow any of his cuſtomers more wine than was neceſſary to recover and recruit the conſumption of ſpirits, occaſioned by hard labour, or the fatigue of a journey: the ſole uſe for which wine ſeemed deſtined by the Creator. He fixed, from his own experience, that quan-

quantity to a pint, and maintained his reſolution with the moſt rigid exactneſs. Such a proceeding was very ſoon attended with the loſs of the greateſt part of his company, and with them the profit ariſing from his buſineſs. The two ſiſters, one of whom had been brought up in a tavern, were enraged with ſpite and reſentment, and attacked him in very ſevere terms. We have always foreſeen, ſay they, that your unaccountable ſingularity would prove the ruin of your family. The world has taken notice of it long, and the good part have propheſied that no luck would happen ever ſince you began to deviate from the cuſtoms of our wiſe forefathers! You ſee what fine effects your obſtinate caprice has produced, in depriving us of the ready money we were daily receiving from our cuſtomers! Is not this to take the bread from your children's mouths? Our poor little ones muſt ſoon be reduced to beg from door to door! Hope better things, good folks! replied Kliyogg, with a compoſed tone of voice, and a ſmiling countenance, examine all circumſtances with deliberation before you condemn me. Have I ever refuſed my children any thing neceſſary to their happineſs? I thank God for having enabled me to ſupply them with wholeſome food and warm cloathing! We do not deny it, but as they grow older, will it not require more to maintain them? True; but their ſtrength will encreaſe in proportion, and conſequently the time is drawing nearer, when they will be able to aſſiſt in improving our eſtate. Are not the crops conſiderably larger than when I firſt entered into buſineſs? And is not it apparent that nothing is wanting but more hands to make a further augmentation of our income? We have no objection to that point. But why is the profit we draw from the tavern to be deſpiſed? that added to what you make by farming, would be a great aſſiſtance to the family. You omit in your calculation, ſaid Kliyogg, that there muſt be

one ſervant extraordinary to wait on the company, whoſe labour is entirely loſt to the farm. We acknowledge that the article of huſbandry may ſuffer a little; yet the advantage is far ſuperior to the loſs. I am ready to admit, ſaid Kliyogg, that our advantage from the tavern is proportionably more lucrative than from the farm, yet can you believe that the money acquired by indulging the vices of our fellow-creatures will be attended with a bleſſing? Are you deaf to the ſad complaints which are poured forth inceſſantly by the wives of profeſſed drunkards, of debauchees, who are the cauſe of their unhappineſs? Does not every day afford inſtances of ſons who have great wealth left them by their fathers, advancing, with haſty ſtrides, towards ruin, and abandoning themſelves to intoxication and ſloth? Is not it reaſonable to fear theſe unfortunate families plunged into miſery, will cry aloud for vengeance againſt the infamous avidity of tavern-keepers, who have contributed to the diſſipation of their wealth? There are, however, to be found, landlords who may be called fortunate, and who have acquired great wealth by their buſineſs. Acknowledged; yet how rare are the inſtances of their continuing rich to the third generation? Their children, inſenſibly accuſtomed to a libertine life, loſe all inclination for induſtry; in accumulating riches at the expence of others, they grow impoſing, and become extortioners: would you wiſh to expoſe your children to the like temptations? Would you wiſh that all the fatigue and trouble we have endured in the culture of our land ſhould prove abortive? and that our children, corrupted by bad example, ſhould be abandoned to careleſs diſſipation, and expend more in one day than we could gain in twenty years by this unworthy occupation? Heaven forbid ſuch wiſhes to enter our hearts! Yet no one ever aſſerted that theſe conſequences muſt indiſpenſibly happen. The probability is ſurely greatly in their favour. How innumerable

merable are the inſtances of the contagion of vicious imitation! We muſt allow it. Suppoſe then you only admit the fact may happen, with what unceaſing reproaches would your minds be depreſſed, for having been the cauſe of your children's depravity? Whereas, if you follow my advice, you will, in truth, amaſs leſs money, but our children, inured to labour, will be contented with the produce of their land, and the bleſſing of heaven, which will viſit them as it has viſited us! Well then you muſt purſue your own courſe; we are always obliged to ſubmit to your opinion, though we are ſure you are in the wrong; but remember, if the event involves us in want and miſery, you are anſwerable for it. Such was commonly the repreſſed reſentment of that contradictory ſpirit which oppoſed the invincible conſtancy of our philoſopher, who perſiſted in the wiſe reſolution he had taken. The inhabitants of the village made it the object of their deriſion, and engaged one of their companions to open another tavern. This proved highly detrimental to the morals of the people, which grew worſe daily; and many parents, diſtreſſed with the irregularities of their ſons, complained to Kliyogg himſelf of the bad tendency of taverns, and that the money ſquandered there would reduce them to penury and ruin.

He diſcovered another cauſe injurious to the proſperity of families in the cuſtom of making little preſents to children by way of birth-day, or new-year's gift. Theſe gratuities, ſaid Kliyogg, habituate them early in life to private hoards by other ways than induſtry, which is ſowing the ſeeds of lazineſs, that ſource of all evils: beſides, preſents on theſe occaſions, conſiſt of unwholeſome delicacies, at leaſt of ſuperfluous ones, or expenſive toys, of no real uſe. People are obliged to return theſe civilities to their acquaintance, and, however ſmall in appearance ſuch trifles may be, they amount to a ſum in the end of the

the year, very often burthenſome to a family. He made it a rule, from that moment, to receive no preſents whatſoever for himſelf or children, from godfathers or relations; and never to make any, except to real objects of charity, ſuch as perſons whom age, decrepitude, or accident had rendered incapable of procuring a ſubſiſtence. He blames all thoſe who beſtow alms on worthleſs undeſerving objects, conſiders it as an injury to ſociety, and that thoſe who inconſiderately diſtribute their wealth in injudicious benefactions, render themſelves reſponſible for the dangerous conſequences reſulting from them. Theſe perſons, ſays he, think to purchaſe by their alms a benediction from heaven, but they are too often an introduction to illicit practices, and by indulging beggars in lazineſs and idleneſs, encourage them to the commiſſion of every ſort of crime, ſuch as theft, impoſture, lewdneſs.

Of all the rules of conduct practiſed by Kliyogg, there is not one which has coſt him more trouble in the performance than this. He has been accuſed of unparalleled ſeverity towards his children, and branded with inſufferable avarice and inflexibility to the poor. But, unmoved by all theſe reproaches, he perſevered in a reſolution whoſe rectitude he acknowledged. His children, it is true, never experienced the rapturous ſenſations which are excited by coſtly preſents, but they are ſo much the more ſatisfied and contented with the enjoyment of what is neceſſary and convenient for their ſtation. The firſt time I went to viſit him, I was deſirous of leaving a pleaſing remembrance of me in the minds of his children by ſome trifling acknowledgements, and was a good deal ſurpriſed not to find in them the leaſt inclination to accept my requeſt. Their father deſired, at firſt, that I would not give myſelf ſo much trouble; as I took his manner of declining only as a compliment, my offers were repeated; but he inſiſted ſtill more vehemently

mently that they ſhould not be accepted. In vain I remonſtrated it was right young people ſhould now and then have proper indulgences, and that what I begged their acceptance of was, as far as I could perceive, to be conſidered in that light. It is not, Sir, ſaid he, with ſome emotion, the value of the money you wiſh to regale my children with that cauſes this repugnance, but my perception of the dangerous conſequences attending theſe ſort of gifts.

He exerted equal firmneſs in baniſhing thoſe diſtinctions annexed to particular days; at his table there is no preference in good cheer given to Sundays or Feſtivals, the concluſion of hay or corn harveſt, chriſtenings, or country wakes. It appeared to him abſolutely inconſiſtent with reaſon to allow the body more nouriſhment on days of relaxation than on days of labour, when the ſtrength, exhauſted by painful toil, has much more occaſion to be recruited. He therefore regulates the food according to the nature of the work, and prepares his labourers not to expect any extraordinary feaſt at the end of harveſt. This is not the effect of covetouſneſs, he ſays to them, for I ſhall ſpend the ſame money that others do, but it ſhall be in maintaining you better every day that your work is moſt fatiguing. He drinks no wine at meals, but carries his pint with him into the fields, and uſes it as a reſtorative, when he finds himſelf ſinking under the burthen of labour. He fattens hogs for the uſe of his family like other farmers, but pork is never a ſeparate diſh at his table, but a certain quantity of bacon is dreſſed daily, cut in ſmall pieces, and ſtrewed with ſome kind of vegetable: this he finds a more invigorating diet than when eaten freſh; and is of opinion that food the hardeſt of digeſtion, affords the greateſt degree of nouriſhment: for the ſame reaſon he gives potatoes the preference to other roots, and rye bread to wheat. This conviction he draws from his own experience, which he cannot eaſily be miſtaken in, as

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he labours inceſſantly with equal alertneſs, and has conſtantly obſerved that his ſtrength is much ſooner exhauſted when he feeds on delicate meats than on thoſe which are groſs, and more difficult to digeſt.

But the firſt and moſt material object of his care is, the education of his children, which he rationally conſiders as the moſt ſacred of all duties. He regards them as ſo many pledges entruſted to him by the Divinity, for whom he is to ſmooth the road that leads to true felicity, convinced that juſtice would be required ſhould he direct them wrong. On this great principle of action he makes it his peculiar ſtudy to prevent the intruſion of all falſe and irregular deſires within their tender minds. Obſervation has taught him that children imitate the manners and actions of older perſons with whom they are daily converſant; and he apprehends that, by a due government of his own paſſions, he could avoid ſetting any bad examples before them if they could be equally preſerved from the contagion caught from others. To prevent this evil, he is deſirous to have them always with him, and inſiſts that they accompany him as much as poſſible in the field, and take their ſhare, in proportion to their ſtrength, in every branch of huſbandry. Thus he endeavours to give them an early taſte for the choice of life he wiſhes them to purſue; leads them to adopt his way of thinking and acting, and hopes to inſpire in their breaſts that true contentment which he regards as the only foundation of happineſs. Whilſt by removing them, as far as he is able from other ſociety, whoſe bad cuſtoms and depraved manners he has taken pains to baniſh from his own houſe, they are not expoſed to the danger of imitation. This rock, on which ſo many ſplit, prevents him from ſending them to a public ſchool, leſt communication with unprincipled and ill-educated young perſons in their walks and hours of recreation, ſhould, by in-

juring their morals, make them too dearly purchaſe the arts of reading and writing.

Kliyogg has undertaken to teach them himſelf, and ſets ſome hours in the Sunday apart for this occupation. In conſequence of the ſame motive, the brothers perform their duty at church alternately. One of them always ſtays at home, as well to preſerve decency of behaviour amongſt the children, as to hear them repeat the catechiſm, and give them leſſons in reading and writing. The ſame motive influences our philoſopher to forbid his children from partaking of public diverſions, ſuch as fairs, village feaſts, &c. a prohibition that has, in truth, ſubjected him to cenſure, to be conſidered as a ſectariſt, a rigid father, whoſe parſimony refuſes his children the enjoyment of any diverſion. You are exceſſively in the wrong, ſaid one of his neighbours to Kliyogg, to treat your children ſo inhumanly by refuſing them every kind of recreation! And who has informed you, ſaid he, that I deny them recreation? Pray have not they as much health and chearfulneſs of countenance as your own? But do not you abſolutely deny their appearance at all places where young people meet to be merry with propriety and decency? Have not you commanded your ſons not to go to the tavern? Nay, it was but the other day, you refuſed to let your daughter accept an invitation to an entertainment, where ſhe might have eat and drank, danced, and diverted herſelf like the reſt of the world! My daughter had not the leaſt inclination to go, ſhe can dance and divert herſelf at home. Do you imagine that drinking to exceſs, or being immoderately merry, are the only things that give us ſatisfaction? Is there any higher gratification at a tavern entertainment than to ſupply the importunate demands of hunger and thirſt? Can the mind exceed a certain degree of hilarity, without regret, in any place? No, certainly; but a little feſtivity at proper intervals, is of great ſervice;

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we return to our occupation with freſh alacrity. Ah! my friend, I have obſerved, however, that when you have been guilty of irregularity at the tavern overnight, you were very little diſpoſed for buſineſs in the morning! You complained of the head-ach, of want of reſt, and regretted the money fooliſhly laviſhed away. I confeſs it; yet ſurely life is not intended to be a circle of labour, without including ſome hours of pleaſure. Have you then no pleaſure in cultivating your land, and beholding the happy reward of your induſtry? Undoubtedly the appearance of a good harveſt gives me real pleaſure. And have you ever felt the leaſt diſpoſition to repentance, after labouring all day, and performing the duties of your ſtation? Never. Why then, my good neighbour, do you not give the preference to joys which are unattended with remorſe, when ſet in competition with thoſe that render you incapable of proſecuting your work, and have frequently been followed by repentance? I endeavour, whilſt the mind is flexible, to inſpire my children with an inclination for rational pleaſure; it appears to me that I am ſecuring their future happineſs! In teaching them to ſhun thoſe tainted pleaſures you recommend, I hope to preſerve them from that ruin which has been the conſequence of depravity of manners in ſo many families.

The method Kliyogg uſes to encourage his children to work by exciting their emulation, deſerves to be taken notice of. Whilſt they are too young to work with the hoe, or ſpade, he makes them eat their dinner upon the floor; but, from the moment they begin to be of ſome uſe in huſbandry, he admits them to ſit at table with the family. In this manner he teaches them to comprehend, that ſo long as man is incapable of labour, and lends no aſſiſtance to ſociety, he can be conſidered only as an animal, who has a right to expect ſubſiſtence, but no claim to the honour of being treated as a member of the community.

nity. In other reſpects, he is peculiarly cautious of creating the leaſt diſtinctions amongſt them. He ſeems to love, with equal affection, his ſons and his nephews, and inſtructs them with equal zeal and aſſiduity in the principles of virtue. It is only by an obedient and amiable behaviour that they can gain his friendſhip, or expect his careſſes. His approbation is all the recompenſe they aſpire to; and he has found the ſecret of making himſelf eminently beloved and revered by his children. They are accuſtomed, from their infancy, to groſs food, ſuch as is provided for the family, and he gives them as much as will thoroughly ſatisfy their hunger, avoiding carefully to excite them to luxury by feeding them, according to the pernicious cuſtom of moſt peaſants, with delicacies by way of reward. Thus they have no paſſion for what is called elegant eating, and are inſenſible to all the delights of the table except the pleaſure of appeaſing a keen appetite. Indifferent in the choice of diet, that to which they are moſt accuſtomed is the moſt pleaſing to their taſte, ſo that Kliyogg may, without any hazard, diſpenſe with the trouble of locking cloſets or cupboards where he keeps his ſtores. This confidence extends to the box where he keeps his money, which is equally open to all the members of the family who are old enough to underſtand its uſe, and are ſuppoſed to be equally entitled to a ſhare. This communication of wealth occaſions every particular to avoid, with the niceſt circumſpection, the ſlighteſt appearance of ſelfiſhneſs, and baniſhes from the heart an immoderate deſire of riches; for they regard money as an inſtrument that ſupplies them with what is neceſſary for the wants of the family; and as they find themſelves abundantly provided with all that can ſatisfy their reaſonable wiſhes, no one entertains a thought of wandering in ſearch of a better ſituation. This fact juſtifies, in ſome meaſure, the opinion that Kliyogg has imbibed, that their deſcendants may, in all probabi-

lity, for ſome centuries, continue incorporated in one family. I have heard him expand this idea in a converſation with a friend of mine, in a manner ſo ſatisfactory, that I cannot forbear relating it.

My friend, who had acquired in a foreign ſervice, the fortune his merit deſerved, had not the leſs regard for his own country as a worthy citizen. Born with an exquiſite and delicate taſte for all that is beautiful or excellent in nature, he came to ſeek, in the boſom of the muſes, a noble relaxation from military fatigue. The moment he heard of the fame of our rural Socrates, he conceived an ardent deſire to be perſonally acquainted with him. I took the firſt opportunity to procure him that ſatisfaction. He was ſtruck with the ſingular genius of the man, and ſaid to him in an accent ſoftened by friendſhip and frankneſs, I perceive, my dear Kliyogg, it is impoſſible to rank you too high in one's eſteem. You have inſpired me in a moment with the moſt ſincere and uncommon affection: you have ſeveral ſons, truſt me with one of them and I will make his fortune in the army. I am infinitely obliged to you, Sir, replied Kliyogg, for your kind intentions, and I aſſure you I feel for you all the reſpect and regard that an officer of your rank, and what is more, of your underſtanding and probity deſerves. But pardon my freedom, I cannot anſwer to my conſcience to part voluntarily with any of my children before they have attained the age when reaſon is mature, and capable of determining. God has bleſt me with children that I might educate them to his glory, and uſe all my endeavours to render them happy: I mean, through the mediation and aſſiſtance of his Holy Spirit, not to fail in this ſacred duty. Your manner of thinking, ſaid my friend, is highly laudable; but have you ſo little confidence in my promiſe as to doubt whether I would be as conſcientious in theſe articles as yourſelf? I undertake to acquit myſelf as your repreſentative, and engage ſolemnly

ſolemnly to do it with all the punctuality and fidelity of which I am capable. I believe you, ſaid Kliyogg, but they are my children, and I ſtand bound in a perſonal obligation to be accountable for them to heaven, which I cannot, without a crime, diſpenſe with myſelf, or confide to another. The duties, Sir, connected with your employment, will not admit of your beſtowing the neceſſary attention my ſon's conduct may require; and with what facility will a young man ſuffer himſelf to be drawn into the allurements of vice, when he has the misfortune to fall into bad company! Do you think, interrupted my friend, there are no men of honour and virtue in the ſervice? Only allow them as much probity and religion as any other profeſſion. I am fully perſuaded they abound in both, and have too ſtriking examples before my eyes, not to be convinced of it: yet it is not to be expected my ſon ſhould always be ſo happy to meet with ſuch; admit the probability that he may often aſſociate with the diſſipated part of mankind. I will guard him from it as much as poſſible, ſaid the General. Whatever reliance I have on your goodneſs, Sir, replied Kliyogg, I beg leave again to obſerve, your ſtation in life will not allow you to watch his conduct with the vigilance neceſſary to my tranquillity. My children are ſcarce a moment out of my ſight; they always accompany either my brother or me through the whole courſe of country buſineſs, and on Sundays I paſs my time agreeably, in reading with them, or ſinging pſalms. Sometimes we walk over fields which our hands have cultivated, where I explain to them the different parts of agriculture, and remark with what ſingular liberality heaven has rewarded our labour. From this ſyſtem of education they will eſcape the evil of bad example, ſo long, at leaſt, as my own life continues irreproachable. I find, ſaid my friend, your maxims of education very prudent and ſenſible; but you ought to conſider you have ſeven ſons in your

family, who cannot always be kept at home: you muſt by ſome means or other endeavour to procure them ſome eſtabliſhment; and on this ſuppoſition the army is not to be deſpiſed: many a brave man makes his fortune there with reputation. I acknowledge it, Sir; but I have a ſufficient competency for all my ſons, provided they always unite to regularity of conduct, that ardour for a rural life, which nothing ought to extinguiſh. This very eſtate, which has ſupported me hitherto, will ſupport them and their deſcendants, if heaven thinks fit, when cultivated with care and induſtry. But ſurely happineſs is to be found in other ſtates as well as in huſbandry. Indiſputably it may, by thoſe who have been habituated to them from their infancy, and have made them their conſtant ſtudy. Providence placed me in a farm: I have inſtructed my children in agriculture: they are ignorant of every thing elſe: their ideas, their proſpects of happineſs, are bounded to the bleſſing of favourable ſeaſons for corn and hay, and enjoyment of the real neceſſaries of life! The moment they enliſted in the army, they would find themſelves tranſplanted into a ſoil, whoſe properties they were unacquainted with. The cares and fatigues attending a military life, would, to them, appear painful and diſagreeable: whereas the hardſhips the huſbandman is expoſed to, are, from habit, become familiar, and ſubmitted to with ſatisfaction. Would not the ſame thing happen in military exerciſes when time had ſmoothed their difficulties? A generous mind, that applies with zeal and ſolicitude to the ſtudy of any profeſſion (no matter what), will comprehend it with readineſs, and may be aſſured of becoming maſter of it. Be it ſo, Sir; but he would, at leaſt, forget his firſt occupation, to which a variety of circumſtances may oblige him to return! And, ſhould this happen, could he reſume it with the ſame ardour, the ſame alacrity? He will have contracted, in diſtant parts of the world,

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another ſyſtem of life. His hours, his diet will be different; and, if unfortunately he knows not how to lay aſide what cuſtom has rendered a ſecond nature, his houſe will be the ſeat of diſorder. Sincerely ſpeaking, it, to me, appears ſcarcely poſſible for any one to be truly happy but in that circle of life he has been early accuſtomed to. You would, in all probability, be much to be pitied, were you reduced to the neceſſity of dining on the coarſe plain aliment, that furniſhes me a continual feaſt. And I, on the contrary, ſhould be equally ſo, were I obliged to conquer my diſguſt for your delicate ragouts and high ſauces: I ſhould not enjoy ſo good a ſtate of health, and ſhould be far leſs contented than with my homely fare. It is the ſame thing in regard to labour. I have practiſed bodily labour, without relaxation, day after day: I am ſo much the more robuſt and diſpoſed to work; but if I exerciſe my mind long upon any abſtruſe point, it ſurpaſſes my abilities, and ſoon brings on laſſitude and fatigue: in ſhort, cuſtom is all. If I am not miſtaken in your opinion, my dear Kliyogg, that children ſhould always follow the occupation of their father, the reſult of it would be, that in time, there would only be one profeſſion in the world. And where would be the misfortune if there was not? replied Kliyogg, with a ſmile. If agriculture was the univerſal employment of mankind, and every one found his ſupport from the labour of his own hands, we ſhould hear no more of treachery or violence. Peace, tranquillity, and contentment of heart would eſtabliſh their reſidence on earth! For I faithfully aſſure you, Sir, I have never yet met with the perſon with whom I would willingly change ſituation: nor have I ever, to this preſent hour, deſired any thing I could not attain, or felt the ſlighteſt degree of inclination to covet the poſſeſſion of what appertained to another! But your ſons, after all, can hardly avoid ſome embarraſſment hereafter. Your eſtate (excuſe

my repetition of the queſtion), can it be ſufficient to maintain them all? Yes, Sir; the productions of the earth are always in proportion to the culture. I have long been ſolicitous to ſee my children of a proper age to aſſiſt me in bringing this farm to as high a degree of perfection as the land is capable of; and when that is accompliſhed, there yet remains large tracts of waſte ground in our neighbourhood which may be purchaſed for a trifle, and where they may undertake a new plan of improvement. There will always be a greater want of labouring hands than of materials to exerciſe them upon. But you are not immortal, Kliyogg, and your death may be the cauſe of ſeparation among your children. When your fortune becomes divided, will they be able, with the ſmall allotment aſſigned each, to continue their preſent way of life with comfort and ſatisfaction? It is preciſely for that very reaſon they muſt not divide the eſtate, but uſe their united efforts to keep up its value. How is that practicable? there is no poſſibility ſo many perſons ſhould be actuated by the ſame inclination. Why not, Sir, when experience has taught them, that the life they lead renders them happy and contented, and when they have no farther wiſhes to gratify? From their infancy they will have been inured to labour. The profits of that will yield them an abundant ſupply of food and raiment; and knowing no other wants, their deſires will neceſſarily extend no farther. Yet, ſurely the ſuppoſition is not very improbable, that in ſuch a number ſome one, ſooner or later, may aſpire to a better manner of living, may ſigh for more delicate food, or finer raiment; what then will become of this happy union? Thoſe once habituated to a certain mode of living, and who find that mode conſtitutes their happineſs, are not very likely to abandon it for another they are utterly unacquainted with, and which their reaſon diſapproves. On this principle, I guard my children with the utmoſt circumſpection from being preſent

in any place that may tempt them to idleneſs, luxury, or debauchery. When early impreſſions are fortified by time, there is little danger of their ever being eraſed. I take all opportunities to convince them that vicious habits precipitate men into ruin, and, on the contrary, that true happineſs is the conſequence of a regular and undeviating attachment to the obligations of humanity. We will take it for granted, replied my friend, that your maxims may be ſo deeply rooted in the mind and heart of your deſcendants as to annihilate all inclination towards a more delicate manner of living; yet there muſt be a contrariety of opinion in many articles, where the command can only proceed from one, and the reſt muſt condeſcend to be governed. He who is the moſt induſtrious, rational, and intelligent man, has a natural right to command. Where there are no irregular deſires to interfere, right reaſon will be eaſily diſcerned by the moſt limited underſtandings: if any vicious inclinations ſhould venture to appear, he who exerciſes the authority of maſter will know how to ſuppreſs them in the bad, by having recourſe to approved and long eſtabliſhed regulations, and ſetting them an exemplary pattern of virtue and propriety. He will not exert the prerogative they have honoured him with, in exempting himſelf from ſharing their toil and fatigue; and whilſt he confines his ambition within proper bounds, and is ſatisfied with being conſidered as their repreſentative, they will ſubmit to his authority without impatience. Thus I have great cauſe to truſt in the goodneſs of Providence that my poſterity may long remain united and undiſturbed, without a thought of dividing their patrimony, or a temptation to embrace any other profeſſion (1). I ſubmit to the wiſdom of your argu-

(1) This converſation will undoubtedly appear tedious to many readers; but I apprehend, to perſons of a benevolent turn of mind it will be intereſting: yet a rational aſſent to what Kliyogg advances,

ment, concluded my friend; remain ſteady to your principles, they cannot fail being attended with the moſt deſireable conſequences. Heaven will crown your perſeverance with a bleſſing, and you will behold peace, concord, and affection reign amongſt your lateſt deſcendants.

vances, is, perhaps, not ſo eaſily obtained. We are apt to conſider ſuch a project as chimerical, and contrary to what experience informs us of the nature of the human heart, and the diverſity of taſtes and diſpoſitions. It is not, however, impoſſible to ſupport, by ſimilar inſtances, and to produce facts that ſo ſtrongly corroborate the ſyſtem of our rural philoſopher, as the ordinary courſe of things ſeems to oppoſe. I ſhall relate one which I had from an eccleſiaſtick, reſpectable for his age, manners, and knowledge of men and books: he is related to the perſons of whom he ſpeaks, and viſits them frequently. I ſhall tranſcribe, literally, from my common place-book, the account I received of him above a year before I knew ſuch a man as Kliyogg exiſted. There is a family in Upper Provence, who are in poſſeſſion of authentic letters of Nobleſſe, granted to one of their anceſtors by Saint Louis, the time he was in Egypt; for having, as the patent certifies, ſaved the King and his army, then in imminent danger. This family live in an obſcure kind of mediocrity, upon their own eſtate, it is true, but by cultivating it with their own hands. They are independent, but enjoy no other advantages above common labour. The eldeſt ſon always ſucceeds to the eſtate, and the younger branches, who leave the family ſeat when they marry, are paid a thouſand livres. Their alliances are with ſimple peaſants; and though their common way of life is in the ruſtic ſtile, they entertain their gueſts nobly with wild fowl, pigeons, and game. When they have been adviſed to avail themſelves of the advantages annexed to the nobility, ſo ancient in its origin, and founded on ſuch diſtinguiſhed ſervices, they anſwer, that they have always lived peaceably and contentedly in that laborious retirement, which was the extent of their wiſhes: that the jealous competition, inſeparable from rank and riches, excited their deteſtation rather than deſire. Their happy abode is, in reality, the ſeat of peace and innocence, candour, and purity of manners. What is ſtill more extraordinary, not one of the deſcendants of this honourable family has ever deviated from the way of thinking of his anceſtors. Thoſe who are deſirous of more public and more general examples, may find them in Joſephus's account of the Eſſenes, a people, whoſe tenor of life may throw greater probability on the opinion of Kliyogg. See alſo in the Appendix, Monſieur de Mirabeau's firſt Letter; the Memoirs from the Count Treſſan, and the Journal Œconomique.

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The brother of Kliyogg was laſt year, 1761, nominated by the community, maſter of the ſchool in his village; an event, which our country philoſopher regarded as very fortunate. He conceived an immediate hope of ſeeing his principles reduced to practice, and of communicating to his countrymen a ſhare of that felicity he himſelf enjoyed, ever ſince the introduction of order and regularity in his domeſtic affairs. He came to participate his joy with me. Sir, ſays he, I am in actual poſſeſſion of a ſpecies of authority, that will add weight to my remonſtrances. You cannot think what influence authority has in promoting publick good, if we know how to exerciſe it properly. My firſt eſſay ſhall be on the children under my tuition, which will be attacking the evil at the root; for good ſeed can never make any progreſs, till the poiſonous weeds are utterly extirpated. This operation is eaſy before they have acquired firm hold. I would ſooner undertake to educate a dozen children in virtuous principles, than attempt to reclaim a ſingle man from confirmed error.

Habit teaches men to regard as a valuable treaſure, the vice they have been long attached to; and to treat as a dangerous innovator, him who ventures to attack eſtabliſhed cuſtoms, however pernicious to the morals of the people. Kliyogg remitted to his brother the care of inſtructing all the children, and was ſo much more at liberty to purſue indefatigably, the labours of the huſbandman: reſerving to himſelf the ſinging-ſchool; where he employed, as is cuſtomary, the hours after ſupper, on Saturdays. Vocal muſick has ever been his moſt delightful recreation; and he has the notes of Lobwaſſer's pſalms by heart; (2) whilſt his brother has much leſs ſkill and

(2) Claude Gondimel, a famous muſician of Franche Comté, who was murdered at Lyons on St. Bartholomew's day, compoſed the muſick, for a poetical tranſlation of the Pſalter, by Clement Marot,

and taſte. Kliyogg entered upon his office by abſolutely forbidding his muſical ſcholars to ramble about the ſtreets after they left ſchool, or to call in at the tavern. A prohibition that raiſed anew the clamour of

Marot, and Theodore de Beze Lobwaſſer, publiſhed ſoon after a German tranſlation in the ſame meaſure, adapted to the muſick of Gondomel. The greater part of the Proteſtant churches, ſtill ſing this muſick, which, without diſcovering any great ſcience, has ſomething ſolemn and harmonious. The French churches have ſubſtituted Conrart's verſion of the pſalms, inſtead of that by Beze and Marot, though the former diſplays no extraordinary genius in poetry. The Swiſs and Germans, ſtill ſing the words of Lobwaſſer, notwithſtanding this language is more obſolete and unintelligible to them than thoſe of Marot and Beze to the French. A proof that ancient cuſtoms are often preferred to common ſenſe, is, that the verſion publiſhed about twenty years ſince, by M. Spring, profeſſor of rhetorick at Baſil, ſhould not yet be adopted by all the German churches, though made to correſpond with Gondimel's muſick, and ſuperior even to the new French verſion. But on the other hand, the attention employed in teaching the people, particularly in country pariſhes, to ſing with propriety, is worthy of obſervation. A ſtranger would be ſurprized to hear pſalms in four parts, ſung with judgement in a village church. The canton of Zurich is remarkable for good ſinging. I ſhall beg leave to tranſcribe a ſtill more ſurprizing fact, related by the penetrating and ingenious author of "Eſſays on various ſubjects, intereſting to politicks and morality," which I fancy will not be thought inapplicable to the preſent ſubject. The diſcoveries of the learned, ſays that diſtinguiſhed writer, whom my country honours, "would "be uſeleſs acquiſitions if they did not extend to the proprietors "of eſtates, and were not made intelligible to the huſbandman. "For the information of the labouring hand, accurate abridge- "ments ought to be compiled, explaining in clear and ſimple "terms, the firſt elements of agriculture, and the beſt practical "rules for melioration. Theſe abridgements ſhould be introduced "into ſchools where the children of the peaſants are educated. "A method that has been often recommended, and cannot be too "often addreſſed to the conſideratiou of the ſovereign. Nor let it "be regarded as a chimerical ſcheme impoſſible to be executed, to "inform the minds of the common people; experience proves its "practicability. A German prince, Erneſt the pious, Duke of "Saxe Gotha, entirely changed the face of his principality, not "more than a century ago. Truly great by his political virtues, "he had his people inſtructed by compendiums of every kind "of uſeful knowledge, which were put into the hands of the

"peaſants

of the village againſt him. He was menaced on every ſide, but his courage remained unconquerable. He ſhut his ſchool againſt all who were refractory; anticipating any intention of theirs, by threatening to lodge a complaint with the miniſter of the pariſh; and, if his admonition was ſlighted, to have recourſe to civil authority. Heaven bleſſed his endeavours; and his ſcholars, the only ones, perhaps, in the country, who deſerve the name, walked quietly home from ſchool every evening. He made them ſenſible, by degrees, of the ridiculous abſurdity of the diverſions at the carnival, on the eve of St. Nicholas, &c. He went farther; he extended his remonſtrances to thoſe in Advent; and put a ſtop, for the firſt time, to the indecent riot and diſorder that had hitherto profaned the eve that preceded the birth of our Saviour. A very remarkable proof of the efficacy of ſteady perſeverance in thoſe who are intruſted with the execution

" peaſants in all country ſchools; they were taught muſick and " drawing. Though theſe inſtitutions no longer exiſt in their " original ſpirit and vigour, it is yet amazing to obſerve the different " irradiations of genius in this and the adjacent circles. The " villages have excellent muſick in all their churches, and there " are few where it is not eaſy to aſſemble a band of peaſants, " capable of performing in concert the beſt Italian compoſitions." This is not an imaginary fact: the author ſpeaks from his own knowledge; and I have ſeen the act paſſed by Duke Erneſt.

Since inſerting the above note, I have been credibly informed, that at Wediſchweil, in the canton of Zurich, the inhabitants have eſtabliſhed a weekly concert: The performers are twelve peaſants, who meet on an appointed day; and there are two hands upon the violin, whoſe execution would be pronounced excellent in a concert of the firſt maſters. At Tætlieken, a very ſmall village, there is a harmonic ſociety; and at Hottengen, another village in the ſame canton, they have a concert-hall, where vocal and inſtrumental Italian pieces are performed with taſte and judgement.

It is well known in Germany, that the peaſants of the famous village of Stroepke, dependent on the bailiwick of Z lly, in the principality of Halberſtadt, have been long acknowledged the beſt cheſs players in Europe. So indiſputable is the fact, that there is no ſpecies of knowledge the claſs of peaſants are not capable of comprehending!

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of the laws. The better to enſure an obſervance of the new regulations, he introduced in the ſchool, he determined to bound his expectations of advantage within the very moderate ſalary aſſigned; and to refuſe the ſmalleſt preſent whatſoever. It is our frailty and venality in this article, ſaid he, that weakens the influence of the wiſeſt regulations. Men offer to their ſuperiors the flattering bait, and from the moment they extend their hands to receive it, thoſe hands become nerveleſs and impotent, in repelling the progreſs of corruption.

Kliyogg has been peculiarly attentive to render his family as independent as poſſible, by making his eſtate produce, as far as is practicable, whatever is neceſſary for attire, as well as food. With this view, he has had one of his daughters inſtructed in weaving, and has appropriated a room for that employment. Yet he does not hold in high eſtimation the works carried on by a great number of the peaſants, in manufactures of various kinds, where a ſmall exertion of ſtrength is required; and which, from their ſedentary nature, relaxes their ardour for the rougher labours of the field, and diminiſhes their ſtrength. The too great encouragement of manufactures will inſenſibly deprive the land of proper culture, and conſequently occaſion the ruin of agriculture!

He is not, however, for abſolutely rejecting manufactures, but regards them as very advantageous when under proper regulations: They afford ſubſiſtence to a great number of perſons, who have no land to cultivate; and to others, whom natural infirmities, or the effects of diſeaſe, render incapable of the toils of huſbandry. (3) Manufactories, ſaid he, are to be conſidered

(3) Manufactures may be extremely detrimental to a country, by completing the ruin of agriculture, when from other cauſes it is haſtening towards declenſion. But if the wiſdom of government can promote the intereſt of both at the ſame time; if it can maintain

conſidered in the ſame light as hoſpitals; theſe ſort of eſtabliſhments are an invaluable reſource to the ſick and decrepid; but when we receive into them the healthy and robuſt, we open a door to idleneſs, and are acceſſary to the deſtruction of our country. In general he weighs every ſide of a queſtion, and conſiders it relatively to the influence it may have upon the genius or the manners: Thus an apparently great advantage would, in his eſtimation, be a real evil, if it tended to debauch the morals of the people. On this principle, he ſets very little value on the flouriſhing ſtate of commerce; as he apprehends its moſt general effects are, introducing an inordinate love of money, debaſing the generous ſentiments of the ſoul, and familiarizing it with fraud and circumvention.

The uncommon fertility of the year 1761, conſiderably lowered the price of corn; the farmer, alarmed, broke into indecent and offenſive murmurs. The moſt ſubſtantial amongſt them refuſed to ſell, and took meaſures to preſerve their corn till the markets ſhould riſe. Kliyogg, ſo far from complaining, enjoyed a heart-felt ſatisfaction, that the poor labourer would eat his morſel of bread at a moderate price; he got rid of his corn at the current price, at the time he had been accuſtomed to ſell it; convinced that it was better oeconomy to employ immediately the ſmall ſum it amounted to, in the improvement of his lands, than hoard it up in a granary till a more lucrative opportunity. He often

maintain them in perfect equilibrium, manufactures, far from depreſſing, will encourage agriculture by the encreaſe of the conſumption. They are alſo auſpicious to population; and an encreaſe of inhabitants will naturally be attended with zeal for culture. In China, under the mild influence of the wiſeſt plan of legiſlature, agriculture, and induſtry, and a multiplicity of inhabitants unite in carrying improvements to the higheſt degree of perfection; ſuch as we have but a faint idea of.

is ſhocked at the hypocriſy of thoſe men, who on every bargain they ſtrike, whether they may have over-reached their neighbour or not, make a parade of the benediction of heaven in their favour, and are always repeating, "God be praiſed!" The thankſgivings they affront the ſupreme Being with, are, in general, expreſſive of their inſatiable avidity after riches, which are almoſt always acquired to the injury of others. The true manner of praiſing the Deity, is to be contented with what we have earned by induſtrious application, without envying the poſſeſſions of another.

Kliyogg recommends to all the members of his family, a conſtant attention to neatneſs in their dreſs, but forbids every appearance of luxury. The ſtrongeſt, and leaſt expenſive ſtuffs and linens, are what he prefers. Extragavance in cloaths is, in his opinion, one of the moſt frequent cauſes of misfortune to families; and is, of all paſſions, the moſt ridiculous and irrational. When buſineſs calls him to the city, he wears a coarſe grey ſurtout coat, with ſteel claſps; and this is to be conſidered as his holiday ſuit. His brother puts it on in turn, and it ſerves both for their journeys to the city.

As the grand purſuit in all his operations is to arrive at the end propoſed by the ſhorteſt way; and as his native ſagacity readily points that out, the moſt exact order and decorum prevails in every part of his houſe; and every utenſil is placed in the very ſpot where it may be moſt convenient. This principle is not only the foundation of his oeconomical ſyſtem, (4) but ſerves as a guide to his moral conduct. Nothing appears to him more clear and determinate, than the ideas we ought to entertain of juſtice and

(4) Thoſe, only, who have experienced how much a ſpirit of order facilitates, as well as accelerates all operations, can conceive how our cultivator has been able to accompliſh, with ſo few aſſiſtants, the ſeveral taſks deſcribed.

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honeſty. Every man, ſays he, may read, indelibly written in his own breaſt, what he ought to act, or avoid, in ſuch, or ſuch circumſtances. All that is required, when our intereſt happens to be in oppoſition to that of another, is to enquire within how we ſhould wiſh to be treated in a ſimilar ſituation; and to obſerve during the courſe of the proceeding, whether our heart is tranquil and ſatisfied. It is in ſelf-approbation for having fulfilled our duty; it is in inward complacency reſulting from ſuch conviction, that true happineſs conſiſts. He diſcerns in the conſequences naturally attending our actions, the recompences or chaſtiſements of an upright judge. In the ſame manner that plenty is the prize of aſſiduous and laborious toil, ſo peace of mind, and ſerenity of ſoul, are the reward of virtuous conduct. I never ſaw Kliyogg melancholy. Even when he has had recourſe to my advice in illneſs, I always found him perfectly compoſed. His animated eyes, and a face whoſe freſhneſs of complexion, denotes the vigour of his conſtitution, have always a ſmiling open appearance that diſcloſes all the beauties of his ſoul, to a ſkilful phyſiognomiſt.

That ſoul has a very ſtrong propenſity to friendſhip, which he contracts with facility. Whatever ardour he has for labour, he quits it with pleaſure when it can oblige a friend. He came one day to my houſe, when I was juſt ſetting out for Brugg, to pay a viſit to Dr. Zimmerman, a phyſician (5) in that

(5)) M. Zimmerman was a pupil of the celebrated Baron de Hallert; and, like that great man, united to a conſummate knowledge in phyſick, very diſtinguiſhed talents in all branches of literature. He wrote an eſſay on national pride; and we have few compoſitions in the German tongue that diſcover ſuch profundity of genius or elegance of diction. This excellent writer has given more deciſive proofs of his uncommon talents in a large work lately publiſhed upon experience in phyſick. In the opinion of a very able man, who is a competent judge of the ſubject, this book would do honour to a Boerhaave, a Haller, or Van Swieten.

city,

city, of whom I was infinitely fond; I knew I ſhould procure this learned philanthropiſt, the moſt peculiar ſatisfaction, in preſenting his penetrating genius with an opportunity of exploring the excellence of the human ſoul, in a ſtate ſo nearly reſembling that of nature. Kliyogg was unwilling to refuſe my entreaties, to favour me with his company; though he had ten leagues to travel back the next day. However univerſal his benevolence to all mankind, he yet makes their zeal for truth, and the integrity he diſcovers them poſſeſſed of, the ſtandard of his affection; and his penetration in theſe reſpects is altogether extraordinary. His converſation is entirely eaſy and unconſtrained, even from the firſt moment of acquaintance; and he has a natural elocution that is very pleaſing; and an ingenuous ſimplicity of expreſſion peculiar to himſelf, which he cannot owe to imitation. To illuſtrate his meaning, he is often obliged to make uſe of compariſons and metaphors, which have always the moſt exact analogy to the thought he wiſhes to expreſs. Though he ſpeaks with facility and freedom, he is equally willing to be ſilent, if he finds he is not attended to with pleaſure. He then devotes his whole attention to the diſcourſe of the company; and his ſenſible, judicious replies, demonſtrate that he ſuffers nothing to eſcape him. He ſeizes with avidity all truths the firſt moment of conviction, and does not reject any becauſe of their novelty, till he has thoroughly examined their intrinſic merit; unleſs ſuch as reaſon pronounces to be evidently falſe. In this particular he is diametrically oppoſite to moſt countrymen, whoſe hereditary prejudices may be regarded as part of their eſſence. No ſooner has Kliyogg attained any beneficial diſcovery, than his ſpirits are on the wing to impart it to others; and he takes all imaginable pains to convince them of its utility, and to conquer their prepoſſeſſions. Never is Kliyogg more happy,

than when he happens to fall into a conference, where the ſpeakers diſcuſs, with that energy which the real intereſt they take in the queſtion inſpires, on matters relating to the publick good. On theſe occaſions, he delivers his thoughts with a noble frankneſs, and analyſes the duties of every ſtation with ſingular judgement; ſtrengthening his arguments with compariſons drawn from rural oeconomics. He attacks the errors that offend him with great freedom, but in a manner very remote from ruſticity.

By this behaviour, he conciliates the eſteem of all men of probity, who know how to value merit. I have introduced him into ſeveral companies, whoſe curioſity had been excited by the delineations I had made of his conduct and converſation. Nor have I ever met with any perſons who, at the concluſion of his diſcourſe, were not ſtruck with amazement at his depth of underſtanding; and confeſſed to me, that my recital of his virtues had inſpired them with admiration for a man ſo extraordinary; but that beholding and converſing with him, had raiſed that admiration to the higheſt eſteem. I have known ſome perſons peculiarly laviſh in their encomiums, after having employed their keeneſt ſatire in throwing Kliyogg and his admirers into ridicule. Reiterated trials have convinced me that, in general, the regard paid to his character is in proportion to the diſcernment and integrity of the perſon who beſtows it, which will explain why ſeveral of the moſt intelligent and virtuous members of the republick, find infinite pleaſure in hearing his unprejudiced ſentiments, on the duties of thoſe who hold the reins of government. He traces before them, without intending it, the admired outline of their own way of thinking, and acting for the publick good. The diſtinction and approbation he meets with do not awaken in Kliyogg the leaſt ſpark of vanity. Limiting all pretenſion to the advantages of enlarging and im-

proving his ideas of men and things, by frequent converſations with perſons of ſuperior rank and knowledge; he preſerves invariably, his ſimple and natural manners. When I acquainted him with my intention of communicating his character to the world: If you think, ſaid he, with an ingenuous ſmile, it will in any reſpect be the better for it, you are welcome; but whether men praiſe or blame me, I ſhall be neither better nor worſe. Who would believe that envy does not ceaſe to perſecute this worthy being? Fortunately all its efforts only furniſh freſh ſubject for praiſe. I was diverted one day with hearing one of the moſt rancorous of his neighbours, exclaim, "That Kliyogg, ſays he, is no better than a beaſt of burthen; he is ſhortening his days by hard working, and forces all his family to bear him company. His pretended diſcovery of the uſe of marly gravel, is a mere farce; our forefathers were no ſtrangers to it; but they laid it on to a field but once, whilſt this man will be perpetually repeating it, till he has entirely ruined his lands." His crops then, interrupted I, are not equal to thoſe of his neighbours? I can't ſay that. I even allow, that he gathers more corn than other people, though when he began farming, his lands were bad enough, but the ſoil muſt be worn out at laſt. You have ſeen inſtances where this has been the effect? Not abſolutely ſo, but every one knows as well as I, that it muſt all end in ſmoke. And then he prunes his trees in ſuch a way, that his woods will come to nothing. He has loſt a great many trees, I gueſs? I am not certain how that may be, but I am ſure his method muſt be a very bad one. What reaſon have you, friend, for being ſo ſure of that? Why every body ſays ſo, and if it were not, many people would do the ſame. Have not you obſerved, let me aſk you, that he prunes his trees only to a certain degree, which he finds will not injure them? That I am

ignorant of; yet this Kliyogg is, in all reſpects, a very ſtrange, unaccountable man; whoſe whole diſcourſe is about making people labour, and work themſelves dead. However, they ſay he does not allow himſelf much time to pray! But, tell me, is he guilty of the ſmalleſt degree of injuſtice? Or, do you hear many reports of his ſwearing, or ſlandering his neighbour? I cannot pretend to ſay I do; it muſt even be granted, that he is exactly punctual in keeping his payments at the time appointed. I do not recollect ever to have heard him ſwear, or ſpeak ill of any man; but he tires you with the repetition of his methods of farming; and is mighty odd and particular in his way of thinking; for inſtance, he will not ſuffer his children to ſet their feet into a tavern, or partake of any diverſion; and makes them wear the ſame cloaths on Sundays, and Feſtivals, as on working days; he has the art of ſpeaking ſo fluently, that there is no diſputing againſt him. A near relation of mine, ſummoned him lately before a magiſtrate, about an affair that had provoked him to the higheſt pitch. He confeſſed to me, on coming out of the court, that he had been forced, in preſence of the judge, to acknowledge that Kliyogg was in the right in every article, though he was convinced then, as well as now, that he was in the wrong; and that ſurely he muſt have bewitched his reaſon. Would to the Lord, ſaid I inwardly, that all my enemies may have no worſe things to accuſe me of. I had no farther view in commencing an acquaintance with Kliyogg, than that of extending and elucidating my knowledge in rural oeconomics. I rated my own abilities above the ſimplicity of a peaſant, and meant to inſtruct him, by attacking and ſubduing any prejudices he might have imbibed, in the method of trying new experiments in huſbandry, which I intended communicating to the ſociety; who, at that period, purpoſed to excite by premiums, the moſt

rational and induſtrious cultivators to put in practice ſuch rules for the melioration of land as ſhould be acknowledged beſt to anſwer that purpoſe. But what was my aſtoniſhment, to find in this villager, a man, entirely diveſted of prejudice! Endowed with a judgement as diſcriminating and penetrating as that of the moſt celebrated philoſopher; and whoſe ſentiments and will were abſolutely ſubſervient to the empire of reaſon! His turn of reflection, his words, his actions, are always in perfect harmony with each other. When he expatiated on the various duties of ſociety, and the univerſal happineſs attendant on their obſervation, I was ſtruck with veneration; whilſt I liſtened, my cheeks were moiſtened with tears, and I fancied myſelf tranſported into the company of one of the ſages of ancient Greece. One day he found me in a very melancholy humour; I could not forbear expreſſing the anguiſh of my heart: he eagerly ſought to comfort my depreſſed ſpirits, with all the zeal of friendſhip. My dear doctor, ſaid he to me, in the courſe of a converſation on the nature of ſocial obligations, when I ſee a man give evident tokens of inquietude and agitation, I conclude he begins to be diſſatisfied with the former part of his conduct, and that he is thinking ſeriouſly of correcting his errors, and entering upon a new plan of life; when conſcience is alarmed, and the ſoul a prey to gloomy reflexions, there is great danger of our making an improper choice. How many are there who fancy they have done all that is required, when they pour forth a profuſion of groans and lamentable exclamations! Who apprehend religion conſiſts in wearing out their knees in prayer, and their eyes in reading pious authors; whilſt they have not reſolution to forſake their vices! Loſt to themſelves, and to ſociety, ſelf-reproach is continually encreaſing; and graſping the ſhadow, they remove farther and farther from the ſubſtance of virtue. Like a man, when the wind has

has blown duſt in his eyes, who thinks to get it out by rubbing them, till experience convinces him, the more violent the irritation, the more they become inflamed and painful.

You viſited our friend N—— lately on his death-bed. Neither his knowledge, piety, nor irreproachable life, furniſhed him with ſufficient motives of conſolation. It is ſeveral years ſince he entertained doubts concerning his ſalvation; and by miſtaking the right path, ſunk into a ſtate of gloomy deſpondency, which made him burthenſome to himſelf and others. In the firſt moments of repentance, a man ought to recollect, he is educated to ſome profeſſion or employment; and that an attentive performance of the duties it injoins, is the moſt acceptable worſhip he can pay to the ſupreme Being. The deſire of reformation is unavailing, unleſs accompanied with endeavours to be uſeful to mankind by the exertion of ſuch active virtues as are correſpondent to our ſtation. Induſtry and exerciſe will reſtore that tranquillity we have loſt, and awaken in the ſoul, inexpreſſibly delightful ſenſations! I am no ſtranger to the ſtate of mind I have been deſcribing; I had my youthful follies, as well as other people. I grew ſenſible of my deviations. I felt the pangs of remorſe: and was overwhelmed with melancholy. In this ſituation, I ſuffered my reaſon to be ſeduced by thoſe who ſtyle themſelves, the Elect, the followers of Harenhuter, or Zinzendorf. I paſſed all my hours in reading and praying, but I grew ſtill more reſtleſs and diſturbed. I am obliged to my excellent wife for leading me back to true religion: It was ſhe who repreſented to me the approaching ruin that threatened our affairs, and perſuaded me again to ſet my hand to the plough. An immediate reflexion ſucceeded, that placed, by Providence, in the claſs of peaſants, I was called upon to cultivate the earth, and to bring up my children to the ſame buſineſs. From that inſtant, I

reſolved to apply my whole application and diligence to the improvement of my farm, and never to be a moment idle. I likewiſe reſolved to act towards all men as I wiſhed, in ſimilar circumſtances, they ſhould act towards me. A maxim which, according to the words of our Saviour, includes "all the law and the prophets." After theſe reſolutions, my heart grew lighter every day; and when, in hours of relaxation, I read a chapter of the bible, every thing appeared clear and diſtinct; whilſt before, all ſeemed clouded with obſcurity. Whenever I poured out my ſoul to my Creator, I experienced the moſt conſolatory ſenſations; and was then convinced of the inefficacy of ſpiritual devotion, where practical duties are neglected; whilſt the conſciouſneſs of having acted right, adds freſh vigour to mental ejaculation.

Kliyogg was now ſilent. I continued the converſation thus, You have reaſoned admirably, my dear Kliyogg, and I acknowledge the truth of all you advance, but your labours and mine are extremely different in their nature. Yours conſiſt in manual exerciſe, mine chiefly in contemplative: which dejection of ſpirits renders me incapable of purſuing, whatever efforts I make, or however ſtrong my inclination. Corporal activity fortifies the nerves, mental activity enfeebles them. By the conſtant exerciſe of a farmer's life, the circulation of the blood becomes more free, and its fluidity greater; whilſt intenſeneſs of thought and meditation, inſeparable from the practice of phyſick, requires a more ſedentary plan of life which condenſes the blood, and occaſions a languid ſluggiſh pulſe. Thus your occupation is calculated to baniſh melancholy, mine to invite it. I am therefore obliged, very often, to fly from reflection, and ſeek diſſipation in walking, and the company of my friends. Still you are purſuing your proper buſineſs, ſaid Kliyogg: in the converſation of men of ſenſe, you may enter into uſeful diſquiſitions for the benefit of mankind,

and

and inveſtigate the abſtruſe parts of a ſubject with far greater facility than in your cloſet. I have always been greatly edified when you have been kind enough to introduce me into company, where the diſcourſe has turned upon the daily new diſcoveries in various branches of ſcience, and on the moſt eligible means of bringing the old to perfection. What can contribute more to general utility than enquiries, where reciprocal communication informs every one, in his turn, of ſomething he was ignorant of? And an agreement of ſentiments, animates and ſupports the execution of every beneficent ſcheme formed for the good of ſociety, ſo that a man will ſoon ſee his labours univerſally acknowledged? Walking may alſo be made an inſtructive as well as healthful recreation, by enabling you to examine, with your own eyes, the culture of our farms; to diſcern the errors our huſbandmen commit; and what defects ſtand moſt in need of correction. You are in the right, my dear Kliyogg, I replied. I will pay an implicit obedience to your advice, and ſeize every occaſion of performing my duty. From this moment I will ſet myſelf chearfully to the taſk, that my own heart may be the faithful and comfortable witneſs of my integrity, as a uſeful member of ſociety, and of my regularity in the practice of all its obligations; happy to be able, whenever it ſhall pleaſe heaven, to quit with ſatisfaction, a life ſpent in the proper exerciſe of humanity, gratitude and thankſgiving to my Creator, and in aſſiſting the diſtreſs and anguiſh of my fellow-creatures.

I may ſafely affirm, that the admonitions, and ſtill more, the example of this worthy man, produced on me very ſalutary effects. Let it not be thought an extravagance of fancy, if I compare his wiſdom with that of Socrates! The parallel would have been infinitely more ſtriking, and virtue would have gained the admiration and honour it deſerves, had Kliyogg been

ſo fortunate to have met with a Xenophon, whoſe energetic pen could have made the world acquainted with his character.

I am even tempted to hope, this faint ſketch will not be abſolutely void of utility, if the features I have endeavoured to mark, impreſs on the mind of my readers only a part of thoſe lively ſenſations I experienced in contemplating the original. Perhaps, the deſcription I have given, may be an inducement to men of ſuperior ſcience and abilities, ſometimes to turn their thoughts and obſervations upon the lower claſs of people. Our knowledge of the various properties and faculties of the human ſoul might be more complete; and our ideas of happineſs, and true greatneſs of mind more certain and determined; (6) nay, I apprehend the queſtion debated by the philoſophers of the preſent age, whether ſciences and literature have been more beneficial or injurious to ſociety, might receive great elucidation. My Rural Socrates is to me a proof, that the human ſoul is capable, in all ſtations, of diſplaying the utmoſt extent of its powers: that remarkable talents are never loſt to ſociety in whatſoever rank he who poſſeſſes them is placed; and that the real perfection of any character conſiſts in acting conformably to the reaſoning faculties beſtowed. The huſbandman, the ſcholar, the artiſan, the magiſtrate, every man according to his occupation, will find ſufficient opportunities for the exertion of his talents; and render himſelf pleaſing to that Being, whoſe benevolent eye comprehends the vaſt circle of the univerſe, provided he contributes to the good of

(6) This author is not the firſt philoſopher who has entered into ſuch inveſtigations. There was a book publiſhed in 1756, nearly upon the ſame plan, intituled, The Moral Philoſopher, by Mr. Hoffman, of Dreſden; with a copper-plate, and this inſcription: *Johannes Ludewig, agri ac vineæ colonus, Philoſophus, Mathematicus, Orator, Autodidactus. Caſſebudæ prope Dreſdam, A.* 1756. *Ætatis* 41. In the *Journal Etranger* for Auguſt, 1758, p. 188, there is a curious extract from this work.

others,

others, as far as his capacity and condition will allow. A wiſe and intelligent farmer, may be as importantly inſtrumental to the proſperity of a country as the moſt conſummate legiſlator: The influence of his ſkill in cultivation will inſenſibly operate upon his neighbours; ſobriety and decency of behaviour will prevail in the village he appertains to, and from thence be diffuſed amongſt thoſe adjacent, till, by degrees, the whole country will reap the benefit of ſo excellent a model. A happineſs that cannot eſcape the eyes of attentive magiſtrates, who are deſirous to rectify errors in government; and to encourage every example that tends towards national utility.

This conſideration has induced me to comply with the importunities of my friends, in communicating to the publick, a work, at firſt undertaken with the ſole view of ſtimulating ſome of my countrymen to uſe their utmoſt efforts for the re-eſtabliſhment of agriculture amongſt us; and of pointing to their obſervations the ſhorteſt way for the attainment of this laudable purpoſe. The inſtance before us proves the poſſibility of ſucceeding, and at the ſame time indicates the moſt efficacious means, that is, unremitting ardour and aſſiduity in laborious and induſtrious application; with a more preciſe and comprehenſive knowledge of the beſt methods for the improvement and cultivation of various ſoils. The firſt requires a general reformation in the moral conduct of the peaſants; the ſecond depends upon phyſical experiments.

The ſtrongeſt incitements to indefatigable toil are the pecuniary advantages ariſing from it; or honorary rewards beſtowed by the government, and particular ſocieties. The deſire of titles, or publick marks of diſtinction, is one of the moſt powerful ſprings that influence human nature: and, in obſerving it act ſo univerſally on all men, in all ſtations, how is it poſſible ever to miſtake the wiſe intention of the Creator,

Creator, which ſeems to invite all legiſlators to apply it to the moſt eligible uſes? Indeed, men of ſuperior abilities, in every age, have conſtantly availed themſelves of its efficacy. The misfortune is, they are not always exactly circumſpect with regard to juſtice, in the diſtribution of titles of honour; which occaſions the profligate and ignorant part of mankind to confound the marks of honour with the thing itſelf. And obſerving that thoſe who have the leaſt pretenſions, frequently uſurp them through art and intrigue; they inſenſibly loſe their luſtre in the eyes of men of merit. If nobility or knighthood were to be conſidered as living witneſſes of ſervices rendered to their country, the appearance of a lord or a knight, would animate every heart with glorious emulation, to arrive at the ſame diſtinction by the ſame path! But, on the contrary, when they behold the moſt deſpicable part of the creation adorned with the ſame robes as the moſt eſtimable; and that titles of honour are often the reward of infamy and lewdneſs: mankind are tempted to bound their ſchemes of grandeur within the pale of thoſe dark and viperous intrigues which are ſure to obtain the prize, however unworthy the candidate. In republican governments, to be choſen into the magiſtracy is an honourable diſtinction; and how much to be honoured is that ſtate where dignities are the invariably aſſured recompence of virtue and merit! There all things flouriſh; every citizen is animated with ardent zeal for the publick, as that alone can render him an object of eſteem. There the firſt leſſon of infancy is, that probity, talents, and application, procure men conſideration, and conduct them to honours. How degraded! how loſt! is a nation, when honours are laviſhed on ſloth, intemperance, and a thouſand other vices! Moral goodneſs no longer exiſts; the moſt important affairs confided to weak and inactive hands, become neglected; emulation vaniſhes; and a mean, ſervile artifice

artifice of conduct the only method purſued to gain rank and reputation!

If the magiſtrates of Zurich think it an object of national utility to encourage improvements in agriculture with premiums and particular marks of diſtinction, their whole attention ſhould be applied to their being juſtly conferred. This care extends to the eſtabliſhment of a Georgical Society of men of character, whoſe inflexible integrity, and complete knowledge of every thing relative to huſbandry, might ſecure univerſal confidence and approbation; for it is neceſſary to be maſters of the ſubject before they can determine with propriety the merit of the candidate. They muſt not only be acquainted with all the ſpeculative part, from the beſt writers, but alſo with much of the practical, from their own experience. Men of this turn will think themſelves under the ſtrongeſt obligation to ſtudy, with circumſpection and accuracy, the natural ſtate of the country: a taſk not to be eaſily accompliſhed, ſince, notwithſtanding the ſmall extent of territory, there is an uncommon variety of cultivation. Thoſe parts that border upon the Alpes are appropriated to the grazing and breeding of cattle. Very little corn is to be ſeen there, whilſt in the lower and leſs incloſed diſtricts of Greiffenſee, Kibourg, and Regenſperg, the harveſt makes a glorious appearance. Along the banks of the Lake of Zurich, in the vales watered by the Limmath, Thour, Thœſs, as well as on the borders of the Rhine, the culture of the vine forms the principal branch of rural œconomics, and this culture is different, according to the nature of theſe ſoils. The grapes on the Lake of Zurich ſeem to require another kind of treatment than thoſe on the Limmath, though the vineyards are ſeparated only by the city; and the culture of thoſe planted on the ſides of the Rhine, the Thour, and the Thœſs, differs widely from both. The members of this Georgical Society, would therefore occaſionally

ſionally make excurſions to examine the cauſes and effects of ſuch variations, and rectify their ideas by the evidence of their ſenſes. Thus, by a judicious diſtribution of applauſe and recompenſe to the beſt of cultivators, a noble emulation might be awakened in the peaſants to bring agriculture to a ſtate of perfection. Careful experiments might be made under the immediate inſpection of the Society of all new diſcoveries, firſt in nurſery-grounds, and afterwards, if ſucceſsful, in the open field. An exact journal ſhould be kept of the regular proceſs of every experiment, ſo that when thoroughly convinced of the real advantage of a new diſcovery, they might extol its utility, and place it on the liſt of uncontroverted improvements, adding, at the ſame time, all the neceſſary rules to bring it to perfection. When the Society ſhall have ſufficiently extended its enquiries, and made all the arrangements neceſſary to ſo important an undertaking, it may propoſe an annual ſelection from a certain number of villages, taking all in rotation, of the beſt farmers. On an appointed day theſe ſhall be invited to appear before the Society, and, ſurrounded by their countrymen, hear an elogium pronounced in the moſt pathetic terms, recommending them as models to others, declaring them benefactors to their country, and, in teſtimony of the public approbation, preſenting them with the deſtined prize! I would chooſe to have it a medal, repreſenting a labourer driving his plough; in the air the genius of agriculture, placing a crown on his head, compoſed of ears of corn and vine leaves interwoven, with this motto, "For the beſt cultivator." Such rewards would have infinitely greater influence in promoting improvements in huſbandry than the general cuſtom of offering premiums for the beſt diſſertation on œconomical queſtions. My method conducts to its end directly, whilſt the moſt ingenious ſpeculations

are

are ſlow and remote in their conſequences (3). I cannot make a better concluſion than with a thought from Xenophon's Hieron, which perfectly coincides with the ſcheme propoſed. "Agriculture, ſo conducive to the good of mankind, would appear of more conſequence was it encouraged by motives of emulation. Nothing would contribute more to its proſperity than the eſtabliſhment of prizes in the country for the moſt excellent huſbandmen. This would induce the people to toil with ardour to the great advantage of the citizens, and the emolument of the ſtate, by encreaſing its revenues: temperance and love of labour would become inſeparable; and it is well known that induſtrious men have leſs propenſity to vice than idle ones."

(3) Youching, Emperor of China, who died in the year 1424, was remarkable for his love of juſtice and exact obſervation of the laws. He ſurpaſſed all his predeceſſors in ſchemes for the encouragement of agriculture; "patronizing this neceſſary occupation "with ſo much generoſity, that he raiſed to the rank of a mandarine of the eighth claſs, that labourer, in every province, who, "by the united voice of the magiſtrates of his canton, was decreed "the moſt diligent, induſtrious, honeſt man! Not that the labourer "was compelled to quit his original profeſſion, where he had made "ſo good a figure, to exerciſe the functions of judicature, with "which he was utterly unacquainted. He ſtill remained a labourer, "with the title of mandarine: he enjoyed the privilege of being "next the governor of the province, and eating at his table; and "his name was engraved in letters of gold in the public hall. It "is ſaid this cuſtom, ſo repugnant to our manners, and ſo ſtrong "a ſatire upon them, ſtill ſubſiſts." See Additions to the Hiſtory of all Nations, by M. Voltaire.

ADDENDA.

ADDENDA.

A Letter from Doctor Hirzell to the French Tranſlator.

SIR, *Zurich, Auguſt* 1, 1763.

I Have the honour to ſend, in obedience to your requeſt, an account of what paſſed at the meeting of peaſants, choſen from our beſt farmers, and held in conſequence of an invitation from the Phyſical Society. An event, in which your philoſopher is ſo peculiarly intereſted as to give this letter a natural right to be inſerted in a ſupplement to the ſecond edition of the Rural Socrates. I do not loſe ſight a moment of our good Kliyogg, and endeavour to catch every native ray of genius that tends to inſtruct and improve. But I fear the more this excellent being mingles with mankind, the more he aſſociates with perſons of polite education, there will be greater difficulty in ſeparating the traces of original character from thoſe that are contracted by converſing with the world. What I conceive ſo peculiarly diſtinguiſhes our rural philoſopher is, his riſing to the ſublimeſt heights of philoſophy entirely by the force of native genius and reflexion, unaſſiſted by books or ſcholaſtic converſation! That a peaſant ſhould, by a happy concurrence of circumſtances, be placed in a way to attain the ſeveral parts of learning and knowledge, and then make a conſiderable proficiency in them, has nothing in it very extraordinary. In reality, what is there more to excite admiration, that a peaſant, by the aſſiſtance of books and maſters, ſhould acquire ſkill in the ſciences, than there would be if a ſcholar, by

by great pains and application, ſhould learn to make faggots?

I thought it requiſite to introduce Kliyogg to the principal perſons in the city, whoſe curioſity was univerally excited: ſome, becauſe his character had intereſted them warmly in his favour; others, from the hope of confuting the deſcription I had given.

Theſe latter could neither comprehend nor reconcile that a ſimple villager ſhould be more wiſe and intelligent than the majority of the magiſtrates, eccleſiaſticks, merchants, or men of letters! They ſupported, with great vehemence, in all companies, that it was impoſſible there could be ſuch a man. The deſire to ſee him was general, and wherever he went he ſpoke with ſo much freedom and ſtrength of argument, that envy itſelf was forced to applaud him, and men of ſenſe and virtue eagerly offered him their friendſhip; the moſt wiſe and ſagacious magiſtrates did not diſdain to converſe with him upon improvements in agriculture and ſeveral other objects of the police, which preſented me with an infinite number of occaſions to admire his wonderful penetration, and the exquiſite knowledge he had of the characters of men. I ſaw that he diſtinguiſhed, almoſt intuitively, the ruling principle in every perſon, and unravelled in ſucceeding converſations, with equal diſcernment, the clue that guided their arguments, whether it was mere curioſity, a ſincere love of truth, vanity, or fondneſs for diſputation. He obſerved with peculiar ſatisfaction in theſe diſcoveries, the impreſſion his ſuperior reaſon and reverence for truth made upon the minds of his audience, and this obſervation gave him hopes of being inſtrumental to the public good. There wanted no farther incitement to engage him to viſit frequently thoſe perſons whoſe diſpoſition inclined them to reliſh, and their ſituation to execute the advantageous plans he meditated.

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He had it particularly at heart to perſuade the peaſants of his community to conſent to incloſing of the common paſturage, which is an extenſive tract of land, very ſwampy and wet, in its preſent ſtate of ſmall advantage; but, in his opinion, when properly divided by incloſures, would furniſh every farmer with food for a much greater number of cattle, and augment manure in the ſame proportion, ſo material to the good culture of ground.

Kliyogg was ſenſible the Phyſical Society was occupied with views congenial to his own, and animated with the ſame zeal for the public. He came often to our aſſemblies, and communicated his ideas on the methods requiſite to be purſued, if they earneſtly deſired that agriculture ſhould flouriſh. He principally recommended extending their complaiſance ſo far as to hear the opinion of the peaſants from their own mouths, and confer with them on the propoſed regulations. It can only be by theſe familiar conferences, ſaid he, that you will ever form juſt ideas of the ſtate of agricultute, determine the preciſe degree our cultivators are arrived at, and aſcertain the cauſes which hath prevented their proceeding farther towards perfection. Theſe marks of conſideration for them as members of the community, whoſe ſtation and underſtanding are not diſregarded, will engage their attention, and raiſe a ſpirit of activity to make proper and judicious reflexions and obſervations on the various parts of huſbandry. By placing confidence in them, you will gain theirs, and they will fall inſenſibly into your opinion when once they are perſuaded that it is not from authority but conviction you wiſh them to purſue new tracks. You frequently reaſon upon the effects of different methods of huſbandry: will you permit me, gentlemen, to bring ſome of my brethren to viſit you? Hear their arguments upon ſubjects which they likewiſe are acquainted with. The farmer is not ſo vain to imagine he underſtands the theory

theory of agriculture like men of knowledge and education; perſuade him however, that he is not totally ignorant of it, rather flatter his ſelf-love, convince him you have a high idea of his capacity, if you mean to excite his emulation, and incline him more earneſtly to ſeek inſtruction.

Perceiving we were pleaſed with his diſcourſe, he adviſed us to chooſe ſome ſubject proper for the inveſtigation of peaſants, and requeſt their thoughts upon it. He recommended, as a firſt eſſay, the queſtion concerning dry fences or incloſures, which he apprehended were carried to a hurtful exceſs in our cantons; that many of them are not only uſeleſs but injurious to the fertility of land, and that theſe rough paliſades rob the foreſts of a great deal of wood, and the labourer of a great deal of time which might be more profitably employed. The Society could not but applaud this propoſition of our philoſopher, but ſome amongſt them had too indifferent an opinion of the unpoliſhed manners and underſtanding of countrymen to expect any thing better from ſuch a conference than much confuſion and diſorder. It appeared to them that the modeſt baſhful part of the peaſants would be too much intimidated to venture expreſſing their ſentiments with freedom in a public aſſembly, whilſt the bold and daring would fall into rude and noiſy diſputes, affording neither information nor advantage; and they thought every peaſant neceſſarily included in one or other of theſe characters. A way of thinking that led to a reſolution of requeſting the farmers to ſend us their ſentiments in writing upon particular queſtions in agriculture: we agreed theſe ſhould be regularly circulated twice a year, commencing with that recommended by Kliyogg concerning fences or incloſures. It was ſtated in this manner.

Query 1. In what caſes dry fences or incloſures are neceſſary? and in what circumſtances incloſures may

be admitted, however ſuperfluous and detrimental they may appear ?

2. Suppoſing dry fences or incloſures are agreed to be evidently detrimental, by what method, more eligible, can land be preſerved from treſpaſſes ?

3. If dry fences or incloſures are judged neceſſary, in what manner may they be rendered the moſt uſeful, according to different circumſtances, or at leaſt be attended with the feweſt ill conſequences ?

We received, before the time limited, ſixteen different memorials ; the ſolidity, perſpicuity, and regularity of the arguments, raiſed our admiration to the higheſt pitch. Kliyogg only was not thoroughly ſatisfied. This appears excellent to thoſe who underſtand good writing, ſays he, but it often happens that the beſt huſbandmen are leaſt ſkilful in ſtyle ! our philoſopher himſelf is a ſtrong proof of this. He returned ſeveral times to the charge, and at length prevailed with the Society to conſent to a perſonal conference with a ſelect number of peaſants. They gave Kliyogg an invitation in form for ſuch as he pointed out, and ſeveral of our members undertook to invite on their part the moſt ſenſible farmers of their acquaintance. The 15th of March 1763 was the day appointed, and fifteen peaſants, from different diſtricts of the canton of Zurich, appeared in the aſſembly.

The treaſurer, M. Heidegger, a wiſe magiſtrate, zealous in promoting every thing that tends to the good of his country, opened the conference by a diſcourſe truly pathetic. One would have thought him an indulgent parent addreſſing his children : he explained, in the moſt affectionate manner, and with the nobleſt ſimplicity of diction, the motives that had determined the Phyſical Society to invite their good friends from the country to a conference. " Deſirous to be " informed," ſaid he, " from your own mouths, of " the real ſtate of agriculture in different parts of the " canton, they wiſh to hear your opinion, how its " defects

" defects may be beſt corrected, and what are the " moſt probable means of bringing it to greater per- " fection." He exhorted them to anſwer, with manly frankneſs and ingenuouſneſs, to the queſtions they had to propoſe, and confined his enquiries principally to the three queſtions before ſtated.

An unexpected affair requiring the attendance of the treaſurer, I was appointed his deputy. Imagine, Sir, my aſtoniſhment and that of the Society in general, ſeveral of whom ſeconded my requeſt with pleaſure, when we heard the greater part of the peaſants, each in his turn, deſcribe, with order and preciſion, the courſe of huſbandry in his part of the canton, compute the advantages and defects, and propoſe the methods he thought moſt likely to rectify the latter. Not one tranſgreſſed the bounds of decency preſcribed: they ſpoke alternately, without interrupting each other, and without the leaſt ſymptom of animoſity or confuſion. When their opinions were divided they objected with modeſty, and ſupported them by inſtances drawn from their own experience. If any of the company attempted to run them down with volubility of ſpeech, they ſoon put him to flight by a cloſe interrogation relative to the point they were diſcuſſing.

I ſhall not ſay any thing, Sir, of the reſult of this conference, as the Society has given the public an abſtract of three prize memorials on the queſtion concerning the uſe of incloſures, and intends publiſhing an abridgement of all the experiments collected at this intereſting conference, moſt proper to ſerve for inſtruction to the generality of huſbandmen. I ſhall content myſelf at preſent with aſſuring you we are ſingularly edified, as much from the decent behaviour of theſe honeſt people, as from their intelligence and zeal for the public good. It is amazing with what facility, clearneſs, and energy they expreſs their conceptions, when we conſider how very rarely we meet

with a union of ſolid argument and ready elocution, in men whoſe genius has been cultivated from their cradle! Upon the whole, Sir, I may venture to aſſure you that this conference did honour to human nature, and has indiſputably convinced us, that a good underſtanding and an upright heart are not excluded from any condition of life; and that true dignity of ſoul is no more foreign to ſimple villagers than to the moſt elevated ranks in the polite world. With a heart affected with what I had ſeen and heard, I could not forbear expreſſing to the aſſembly the feelings with which I was agitated. I have never in my life experienced, ſaid I, a ſatisfaction equal to what I am ſenſible of at this agreeable moment, when I behold men of ſuperior talents in the city and the country unite their common endeavours for the public benefit! and you, dear friends of agriculture, muſt now be convinced that all our views centre, in the diſcovery of ſuch methods as may infallibly tend to augment the proſperity of our country, to give freſh vigour to the induſtry and activity of our labourers, by endeavouring to inſtruct them in the moſt certain rules for improving the fertility of the ſoil; to procure intelligence and read diſſertations from all parts of the globe, compoſed by men whoſe knowledge and ingenuity are eminently adapted to inſtruct us by the experiments they make. Thoſe amongſt us, whoſe ſituation will allow it, confirm the reality of theſe experiments by trials of their own. I ſee, my good friends, you are animated with the ſame zeal, and I expect the moſt happy effects will attend this country from it; for, in reality, it is on you that the ſucceſs of all our enquiries depends. All our ſpeculations would be fruitleſs if you were dilatory in performing your part; and if, convinced as you are of the integrity of our intentions, you delayed to execute the plans we recommend. It depends on your endeavours to render this a happy and flouriſhing country. Your vir-

virtues, your candour, are ſure guarantees of your acquieſcence: you will then have a juſt right to the glorious title of benefactors to this beloved country: you will then demonſtrate to the world that the occupation of a huſbandman, is, in its conſequences, the moſt important and honourable of all that are exerciſed in civil ſociety; and, at the ſame time, the moſt agreeable and ſatisfactory to fulfil. What can be more pleaſing than a perpetual contemplation of the works of the Creator; than breathing a pure and free air, confirming the health of the body by exerciſe and labour; than beholding abundant fertility, the reward of care and diligence? What employment can be attended with ſuch heart-felt joy as that where the greater part of the ſucceſs depends on a man's own conduct? How much more unfortunate in this reſpect are we? How much time muſt be expended? How much care and anxiety endured before we can give our ideas that form which will make them acceptable to others? And what a number of efforts muſt be made? What a number of obſtacles ſurmounted before we can introduce them into practice, or reap the leaſt advantage from our ſtudies? Continue then, my friends, to ſecond us with all your might, give us a ſhare of your confidence and friendſhip. You ſhall ſee us, in our turn, do every thing in our power to convince you of our ſincere regard, and render of general uſe, the maxims we have learned from books, from experiments, and from your converſation. May this union of intereſts procure our country all thoſe bleſſings there is reaſon to expect. I had the ſatisfaction in finiſhing my diſcourſe, to obſerve ſome emotions in the countenance of my auditors, expreſſive of their approbation.

The Society, as a teſtimony of regard and good will to their gueſts, had provided a dinner, where there was ſo general an appearance of cordiality and kindneſs, that the concluſion of the day was not leſs

affecting to a well-wiſher to mankind than the beginning.

Theſe, Sir, are the particulars you deſired to know. I hope you are in good health, and am, &c.

HIRZEL, M. D.

LETTER I.

From the Marquis de Mirabeau to the French Tranſlator.

SIR, *Paris, Nov.* 8, 1762.

AT my return from a five months tour through the ſouthern provinces of this kingdom, I found the letter you did me the honour of writing on the 14th of laſt month, with a copy of your book, which has waited too long for my warmeſt acknowledgements. But before I thanked you, ſir, for this flattering and diſtinguiſhing mark of your eſteem, I was deſirous of forming a proper judgement of the work, that I might deliver my ſentiments with freedom and ſincerity; and this deſire has retarded, for ſome days, my eagerneſs to expreſs my gratitude. The time, however, is not great, for I have been only five days in Paris; and domeſtic affairs with a large family, and this part of the world, require a good deal of regulation at one's firſt arrival. I have juſt now finiſhed reading this edifying, excellent work, and am impatient to thank you for the pleaſure it has given me. I am peculiarly ſenſible, how little I deſerve the reſpectable character with which the people of Switzerland have complimented me. And if ever ſince I was enrolled in their Society, I have been eager to demonſtrate my zeal on every occaſion; I have only acted the part of a man, who is in ſome degree aſhamed to receive a recompence for ſervices yet unperformed. From my earlier days, I have delighted in blowing the trumpet of honeſt fame; and indulged my inclination in delineating, and celebrating ſuch

characteriſtical

characteriſtical and delicate features of the ſoul as do honour to humanity. This turn of thinking will explain to you, how much I muſt have been charmed with the Rural Socrates. The reputation of the piece has travelled here before, but I have only my own ſentiments to ſpeak of at preſent.

Let me then aſſure you, that I conſider it as one of the moſt uſeful books that ever was publiſhed: an exalted advantage that neceſſarily includes the agreeable! for the mind muſt be intereſted before it can receive ſolid inſtruction. The figurative modes of expreſſion, the brilliancy of poetical images in the Old Teſtament, and the parables in the New, are indications that the Deity himſelf accommodates his expreſſions to the contexture of thoſe finer parts of the human frame, which he has formed to receive the impreſſion of his laws. Some firſt-rate genius, perhaps, has given wing to that ſwarm of diurnal writers on practical agriculture which has over-run this nation. I have ſeen, not without ſome painful reflexions, that in a country where no one is acquainted with its principles or dependencies, every body pretends to teach it. Preſumption, as is common, marches on the ſide of ignorance. The farmers of the cabinet, have compoſed voluminous rules, that all purchaſe, few read, and happily, none practiſe! Others have impudently boaſted of the ſucceſs of pretended experiments; and confined their tillage to the paper they are blotting. Indeed there is ſome prudence in not running inconſiderately into expences upon an ungrateful ſoil, which would never repay them! Some patriotic ſocieties are formed in cities, who extol exotic ſeeds; ſtrike out new models for ploughs; harangue upon unknown productions; make expenſive garden experiments of no utility; reform the practice of experienced huſbandmen: whilſt the latter contemplate with diſdain theſe delicate ſpeculative profeſſors, coming cap in

hand, to propoſe their abandoning a ſyſtem of huſbandry pointed out by reaſon, and confirmed by experience. In the midſt of this crowd of pretenders, ſome judicious men have given good, and ſhort methods of cultivation, the fruit of their own ſucceſsful labours; but theſe eſſays, few in number, floating in the chaos of modern erudition, are known and valued by perſons of genius only. My zeal for the advancement and perfection of an art which I have ever acknowledged and boaſted the utility of, without pretending to underſtand the detail and progreſs of its operations, led me to obſerve, with vexation, that the new ſyſtem of huſbandry, was no better than a georgical romance, deſcribing the falſe experiments of a deluded nation. Where would have been all our arts and ſciences, exclaimed I, if we had ſought their principles in the fictions of orators? Let us enrich agriculture with examples that may conduct us to truth by inſtructive and animating deſcriptions. Not knowing where to meet with ſuch, I was tempted to a tranſlation of Thompſon's Seaſons. I ſoon ſaw that theſe were the peaſants and landſcapes of the imagination: I wanted portraits of real life and manners; and the Rural Socrates more than anſwered my ſanguine wiſhes. It contains the theory and practice of the moſt rational and intelligent huſbandry; the moſt noble, and comprehenſive philoſophy; the moſt ſincere and elevated piety! Kliyogg is my hero in all things! How do all our mean prejudices fly before the preſence of ſuch a man! What innate dignity and worth muſt he poſſeſs who never deviates from the law preſcribed by the Supreme Being! Did my ſituation admit my abſence, with what pleaſure and advantage ſhould I travel to converſe with this extraordinary genius! I might, perhaps, convince him, in ſhewing him a ploughboy that I have, who, with two horſes, regularly

plows

plows two acres per day, (3) of the advantage he would gain, ſuppoſing the nature of the ſoil, and the extent of his culture allow him to prefer the labour of horſes to that of oxen; as it now requires four oxen and two men to plow only one acre per day. I would acquaint him that there is nothing chimerical in his tribe of peaſants; ſince the clans of Scotland exactly reſemble it, with this difference, that they ſettled in an uninhabited country. I would alſo inſtance the Haut-pentvis of St. Omer, who occupy the ſuburbs of that large city. Theſe are a family of merchants, whoſe buſineſs obliges them to aſſociate with the world: yet, by their conſtant care to intermarry with each other, they preſerve that diſtinction of language, manners, and regular conduct, on which their proſperity was originally founded. But what has a ſtill nearer connexion with the plan of Kliyogg, and ſeems a more proper and ſolid foundation for him to build upon, is the family of Pineon, a farmer in Auvergne, who had the ſame idea more than a century ago; and having lived to ſee his ſons married, requeſted them to continue a diſtinct tribe, and to maintain inviolably the ſacred band of union, by the community of wealth and property amongſt them. This amicable inſtitution has proſpered ſo greatly, that the Pineons have not only a family ſeat in the mountains, ſupplyed with all the conveniencies of life, with elegant apartments for ſtrangers of the higheſt rank, who are treated with the moſt generous hoſpitality; but they have alſo ſeveral villages appertaining to them, whoſe clergy, lawyers, &c. are branches from the ſame ſtock. The neceſſary arts of life are exerciſed in this tribe for the emolument of the whole, and the

(3) M. de Mirabeau will allow me to aſſert that this is a moſt remarkable circumſtance: It is pity he did not add the ſoil. It is often done in Norfolk, but only in the very light ſoils, and by no means equals one acre in heavier lands.*

ſuperfluities

ſuperfluities ſold at the adjacent fairs and markets, where every one carries with him his family credentials. I know theſe circumſtances only by report; though in the journey I lately made, I paſſed within eight leagues of this ſingular eſtabliſhment, without knowing it. I wiſhed for time to have turned back, and made my own obſervations and enquiries: I will repair this neglect ſome other time, as my eſtate at Limouſin is not more than thirty leagues from thence. In regard to the family in Upper Provence that you mention, I am of that country, and I never heard any body name them before. Beſides, the point in queſtion ſeems to be a free communication of property, rather than an obſtinate perſeverance in living in obſcurity. The laſt is attended with too great a degree of penury; the former can never be acquainted with it. Upon the whole, Kliyogg will found an order of monaſtick huſbandmen; but nature will be its baſis, without the aſſiſtance of enthuſiaſtick mortification, or ſevere penances always ſo ſeducing to the imagination of heated ſuperſtitious men, who are ignorant of eſſential duties. All is ſimple, and conſequently great, in his inſtitution! I will venture to foretel, that the poſterity of this man will be an honour, defence, and bleſſing to his country. Yet his project will probably be accuſed of ſingularity, and would be not at all analogous to the conſtitution of a large kingdom. I have little more to add, ſir, than to expreſs my grateful ſenſe of the diſtinguiſhed honour done me in the dedication of ſo valuable a work. To be eſteemed by perſons of probity was always my higheſt ambition, and there is ſome virtue in wiſhing to be virtuous! Like the poet, who places in the ſame part of the Elyſian fields thoſe celebrated writers, "*E Phœbo dignè locuti, quique ſui memores alios fecere merendo.*" I aſſociate thoſe who celebrate the virtue of others in their writings, with thoſe who illuſtrate it by their example;

from

from a perſuaſion that who knows and reverences, will undoubtedly practiſe it. This, ſir, is the uſe I hope to make of your good opinion. You connect with it the ſuffrage of a nation that I have reſpected and loved from early youth; who adore liberty, underſtand natural equality, practiſe virtue, and enjoy happineſs. It will ever have the ſecond place in my regard; the ſocial affections of my heart repoſe there, when torn and diſtreſſed every where elſe. It is, by all ſorts of titles, that the preſent you have obliged me with, gives you a right to my moſt lively gratitude, united to the ſentiments of eſteem, with which I have the honour to be,

Sir, &c.

The French Tranſlator's Anſwer to M. de Mirabeau.

SIR, *Baſil, Jan.* 4, 1763.

I have reaſon to applaud my good fortune in preſenting the publick with the tranſlation of a work which has merited your approbation, and procured me the honour of a moſt obliging and intereſting letter. What would I not undertake to deſerve the friendſhip of the Marquis de Mirabeau! And how flattering the conſideration, if this faint eſſay has given me ſome claim to your eſteem, and ſecured me the privilege of correſponding with you, till ſome fortunate circumſtance gives me an opportunity of paying my perſonal reſpects; a pleaſure I am more deſirous of, than I can find words to expreſs!

Your excellent book (4) had the ſame effect on me, that is univerſally experienced in France, and other parts of the world. It has received that unprejudiced taſte for agriculture, which ſeems naturally implanted in the human heart; though frequently extinguiſhed for want of exertion. Some other productions on the ſame ſubject, that owe their fame to your recom-

(4) *L'Ami des Hommes.*

mendation,

mendation, and ſome accidental opportunity of applying my attention to rural affairs, have encouraged this taſte, unfortunately ſo ſeldom compatible with the profeſſion of arms. If I can indulge this propenſity in thoſe intervals of reſt, which the lenity of the French ſervice ſuffers its officers to enjoy; or, when I have finiſhed the career of glory, I ſhall hope, ſir, you will not refuſe me your inſtruction nor advice.

I have ſtill another favour to requeſt: the booksellers who had the copy of the Rural Socrates, finding the firſt impreſſion ſold readily, propoſed printing a ſecond; and I have thoughts of adding ſome fugitive pieces, by way of notes, or ſupplement. If you will allow me to include your letter, it will be a conſiderable embelliſhment to this new edition. The ſanction of a man of genius, will add double weight to the patriotic maxims you admire in Kliyogg. And the examples of the Haut-Pentvis, and the Pineons, which you have kindly cited, beſides their being very remarkable, furniſh a freſh proof of the judgement and underſtanding of our country philoſopher.

There is one circumſtance, in which you ſeem to differ: I mean the preference he gives to oxen in plowing. In your opinion horſes anſwer better. But I am doubtful whether the difference of ſoil is conſidered. A man with you, can plow two acres in a day with two horſes; but are the lands ſtiff and heavy as thoſe of Kliyogg? Beſides, this conſiderate huſbandman tells, that oxen are bought at a more moderate price than horſes, computing the final profit and loſs reſulting from each: there is not near the expence in maintaining them; and the quantity and quality of the manure they afford, is a full indemnification for the want of activity in theſe animals. I know the article "on the culture of lands," in the Encyclopædia, gives a very poſitive decree in favour of horſes; and your opinion, ſir, greatly

greatly ſtrengthens the deciſion. I will never grant the advantage inconteſtable in the greater part of the provinces: but we muſt not conclude this to be the caſe in Switzerland; where, I apprehend, oxen are ſtronger and more active than in France, becauſe the herbage is better adapted to their conſtitution. Oxen there are alſo much more profitable to the grazier than thoſe in France, as they ſell much higher, when fatted. They are driven to the markets of Paris, and ſupply the troops during the campaigns; nor is there any beef but that of Auvergne, which is comparable to this. Fodder for horſes, and oats, in particular, are much dearer in Switzerland; and, perhaps, it may be added, horſes require more corn. At leaſt, I obſerved in the laſt war, the Swiſs horſes in the regiment ſuffered more from the ſcarcity of food, to which our ſituation expoſed them, than thoſe of other countries.

I beg leave to remind you, ſir, that theſe are rather doubts than objections, I take the liberty of offering; and from the acknowledged ſuperiority of your judgement, I hope to have them removed. I remain, with the higheſt eſteem,

Sir, your's, &c.

LETTER II.

From the Marquis de Mirabeau.

SIR, *Paris, Jan.* 25, 1763.

I am thoroughly ſenſible of the many polite expreſſions in your letter of the 3d of January; and ſhould rejoice to have it in my power to thank you perſonally, or that my correſpondence could afford you any entertainment. But, ſir, ſince you are ſo fortunate, not to have loſt in the life of a ſoldier, the elements of that taſte for agriculture, which the great Author of Nature has univerſally diſpenſed; a taſte calculated

calculated to procure competence, health and peace, to all ages and ſituations; it muſt be by practical experience, and the ſociety of perſons perfectly acquainted with huſbandry, that you can attain a complete knowledge of the art, rather than from correſponding with thoſe who honour it.

I am much pleaſed, for the ſake of the publick, that the ſale of the Rural Socrates anſwers ſo well; nor do I apprehend, that a ſecond edition has occaſion for any augmentations to give it equal ſucceſs. I have always been ſcrupulous of making alterations in the eſſays I publiſh, if they go through a ſecond edition; though certainly, in one of them there is a very eſſential correction wanting; for in the ſecond part of *L'Ami des Hommes*, I have expreſly contradicted what I had aſſerted as a fundamental principle in the firſt, "that population was the conſequence of riches." I was ſenſible of my error in miſtaking the cauſe for the effect, and have ſince advanced that "population was the origin of wealth." The method was ſimple and eaſy, to have eſtabliſhed this latter opinion by ſome ſlight additions, explaining its rectitude; but I made a point of leſſening the value of the book to the firſt purchaſers, and have invariably perſiſted in not changing the leaſt ſentence in works once publiſhed; or adding any thing by way of appendix, in future editions.

The latter ſeems to be what you intend, inſtead of inſerting notes in the work itſelf. I ſhould be glad if the letter I did myſelf the honour to addreſs to you, and that you are deſirous of printing in the ſupplement, may carry any weight or utility; ſuch as it is, ſir, you are to conſider it as your own property, not mine. I have made a reſolution, and I ought to keep it, never to print any thing for the future; but it would give me ſatisfaction to write any thing for the benefit of mankind; and that ſo worthy a truſtee as yourſelf

yourſelf ſhould ſtamp a value upon, that it certainly did not poſſeſs when it quitted my hands.

If you ſtill think in the ſame manner, I ſhall ſtill more regret not paying a viſit to the family in Auvergne, that I gave you ſome particulars of; I could then have collected ſuch circumſtances of its founder's inſtitution, as a man attentive to the formation and progreſs of ſociety muſt undoubtedly have remarked. A ſcheme of this nature muſt have been the reſult of deep reflexion; and a man who ſettled a number of individuals, as a ſeparate eſtabliſhment, was to conſider of rational means for their ſubſiſtence from the labour of their hands, on an uncultivated mountain. The aſſiſtance of both heaven and earth ſeemed neceſſary to ſupport the publick credit of ſuch an inſtitution, with the various expences of magiſtracy, civil policy, and military defence; which the cruel avidity of the ſons of intereſt render univerſally oppreſſive, whilſt their combinations are the heavieſt tax. A citizen, I ſay, who, in his paſſage through life, completed an eſtabliſhment like this, deſerves the moſt exalted encomiums; and his example, and inſtitutes, cannot be too zealouſly recommended to publick regard and imitation. This is what I ſhould have had great pleaſure in doing; and my letter had then been worthy of appearing as a counterpart to the living example of Kliyogg. All I know is, the fact is real; and in regard to circumſtances, I believe I have told you, I have only report, and general rumours are always defective in ſome reſpects. An ocular witneſs of veracity and integrity, is the only authority to be depended on, in any hiſtorical fact. I will one day or other take a journey into Auvergne, and be my own examiner. Kliyogg himſelf, may find, perhaps, in the rules of his predeceſſors, ſome maxims that may ſupport and eſtabliſh his excellent ſyſtem. Your remarks on the difference of expence in the uſe of

oxen

oxen and horſes, is a point ſo important, that we cannot be too exact and nice in our calculations concerning it, which are the true foundation of good oeconomy. I ſhall begin firſt, by aſſerting, that there can be no general rule in agriculture adapted to all cantons, all ſituations, all tenures of lands or eſtates. Secondly, that the particular reaſons you offer for the preference given to oxen in Switzerland, appear to me well founded, in regard to the cuſtoms of the country, the qualities of the ſoil, and the circumſcribed limits of the farms. Thirdly, I argue, that Kliyogg has not a ſufficient extent of land to make draught horſes anſwer. But it is nevertheleſs true, that his method of plowing cannot ſerve for a model in a rich and large farm; for to judge according to rules of calculation, let us firſt, if you pleaſe, examine the detail of expence and produce in the huſbandry of that ingenious cultivator, as they are ſtated.

In the liſt of expence, there is no deduction for the advances, nor for the intereſt of the firſt, as well as annual expences of that culture, which occupies four perſons, the heads of the family; which expence ought to be reckoned under the title of annual advances, at leaſt as 26l. 5s. This is but a paltry expence for the maſters and eleven children £26 5 0

The keeping four oxen and one horſe cannot be reckoned at leſs than 2l. 3s. 9d. a head, or 10 18 9

Wear and tear of the plough and other implements 4 7 6

41 11 3

The returns from theſe expences or the neat produce are no more than 30l. 1s. 6d. It muſt therefore be an extreme parſimony, that can ſupply the reſt; beſides the intereſt of money, and without reckoning

reckoning an immunity from every impoſt. But let us return to the calculation.

The total produce of the forty-five acres of land, expences included, except ſeed, is 68l. 2s. 9d. that is about 1l. 10s. per acre.

The neat produce of forty-five acres, which pays 21l. 17s. 6d. rent, and 8l. 3s. 7d. tithe, is about 13s. 3d. per acre.

The returns to the cultivator for the management of forty-five acres is 38l. 2s. 1d. or per acre about 17s. Now in the grand culture with horſes, theſe returns are 75l. 2s. 4d. inſtead of 38l. 2s. 1d. or 1l. 13s. 3d. per acre, inſtead of 17s.

In Kliyogg's culture the land yields $5\frac{1}{4}$ of produce for one of ſeed. In the great culture, upon a medium of ſtrong and light land, it is $10\frac{1}{7}$ for one, the maintenance of the horſes deducted. It is not in this reſpect the ſame with Kliyogg; his oxen conſume him the greateſt part of the hay of fifteen acres of graſs, and eat twenty-four acres of paſture. This diminiſhes more than a fourth of the produce of his eſtate, for without this expence it would yield him about 87l. 19s. inſtead of 68l. 2s. 9d. Nevertheleſs the expence of a horſe is triple that of an ox. It is a mere vulgar error to ſuppoſe the labour of oxen for culture more profitable than that of horſes.

In the compariſon which we have made of the ſmall culture practiſed by the laborious and able Kliyogg, with the rich grand culture, the loſſes of the farmer amount to 37l. and the loſs by the expences of the oxen amount to 19l. 13s. 9d. ſo that the total is 56l. 13s. 9d. which is equal to the half of what the land would produce in the grand culture.

In the grand culture, the expence of the horſes is recompenſed by the gain which may be drawn from beaſts of profit; thus the one is abſorbed in the other, and both are excluded from the calculation of the expences and product of the grand culture. It is ſo with the ſmall culture where the expence of the oxen

muſt have place in the calculation, and then examine the recompence drawn from the profitable cattle: theſe with Kliyogg are reduced to four cows and two hogs. The profit of the firſt may be reckoned, expences deducted, at 3l. 10s. and that of the hogs at as much more, in all 7l. We may alſo reckon the profit by the oxen after ploughing them. This amounts to 8s. 9d. a beaſt; and this benefit may come after working them four years. The four beaſts will, therefore, in four years, pay 1l. 15s. or 8s. 9d. a year, which makes the ſum total 7l. 8s. 9d.

The advantage of ſelling the beaſts that have ploughed is well known, and of receiving in ſuch ſale the money they coſt, whereas thoſe who uſe horſes profit not by this advantage. I ſhall not enter into this account, but to prove the nullity of it, refer the reader to the article *Fermier*, in the Encyclopedie.

We find therefore, for Kliyogg, a recompence in his profitable beaſts of 7l. 8s. 9d. but we muſt not forget a ſum of 4l. 16s. 3d. which he pays annually for a meadow. This reduces the 7l. 8s. 9d. to 2l. 12s. 6d. which are a deduction from the 6l. 17s. 6d. loſs, which is found in the compariſon of profit, between the great ſcale of huſbandry, and the ſmall one. But I am yet of opinion, that it would not be for the advantage of Kliyogg to purſue this method of culture, which requires, at leaſt, the conſtant labour of one plough to every hundred acres of land; and where it would be neceſſary to have a flock of ſheep, with other ſtock in proportion, to furniſh the neceſſary manure for producing ſtrong and plentiful crops. Thus the reſult of all our reaſoning ſtill is, that the Rural Socrates, according to the circumſtances of his ſituation, undiſputably remains an excellent farmer, and a moſt exemplary citizen (2).

I have

(2) This calculation of M. de Mirabeau is by no means clear; the compariſon of two horſes againſt four oxen and a horſe is out of

I have thus, ſir, endeavoured to aſcertain the real difference of expence between the two methods of huſbandry. At the ſame time, obſerving, that I ſpeak in general terms. But this fact, which by a cloſer and more accurate computation is rendered yet more ſtriking, and demonſtrable, is certainly of the greateſt conſequence to the real proſperity of a ſtate; and of courſe, to the multiplication and happineſs of the human ſpecies. Experimental truth is the great baſis of true oeconomical ſcience; that noble ſcience, to which all others muſt yield the preference; but poſterity will, I hope, enjoy the ſunſhine of that dawn which breaks upon our horizon. In the contemplation of that happy period, continue, ſir, your aſſiduous application to a ſtudy that renders you uſeful to mankind. I experience in ſome degree, the pleaſure of this diſtant perſpective, though I have contributed very little towards its perfection. Thoſe charitable perſons who recommend our detaching ourſelves from this world in order to prepare for the next, are not guilty of fallacy, in ſpeaking of the generality of men, when they ſay, it is the ſame thing, at their laſt hour, whether they have lived a hundred years, or only thirty: to thoſe who are entirely engroſſed by their own ſelfiſh, mean, contracted advantages, or idle pleaſures; the paſt is indeed nothing: but to men, whoſe occupation is the good of others; who have ſowed in the paſt, reaped in the preſent, and planned a rich harveſt for the future; it is very important for them to have lived; to continue to live; and to hope for length of days. Yet ſuch men, though they ſee the completion of their labours, are not ſo infatuated with the brightneſs of the proſpect, as to reſign it with reluctance in the

of the queſtion. Relative to England, I aſſert that two oxen are maintained much cheaper than two horſes, and will do equal work; which is at once deciſive; and I ſpeak from my own attentive experience. *

moment when they muſt bid adieu to all earthly enjoyments. Their benevolent and publick-ſpirited plans, will gain a ſolid foundation, independently of their exiſtence. Self-love buried with its victim, groans over the remembrance of vaniſhed joys, and laments there are no more in reverſion; whilſt the ſpirit of philanthropy repoſes in the conſumption of a life exerciſed in the practice of thoſe virtues it inſpires; bleſſes mankind in departing, and is comforted by the conſolation that it falls alone, and leaves the world flouriſhing and happy. This is, I think, the beſt regimen we can preſcribe to all periſhable beings, who feel and reflect. You are now following it, and I fancy myſelf ſomewhat entitled, certainly intereſted, to recommend that you perſevere. I have the honour to be, Sir,

Your very humble ſervant,
MIRABEAU. (5)

That I might leave nothing omitted capable of clearing up this important queſtion, at leaſt, ſo far as it relates to Switzerland; I addreſſed my enquiries to a native of that country, the moſt equal in the knowledge of agriculture to the Marquis de Mirabeau: A man, to whom ancient Greece had erected ſtatues, and to whom all his fellow-citizens capable of comprehending his worth, raiſe them in their hearts. This friend to the human ſpecies, is the valuable M. Tſchiffeli, ſecretary to the ſupreme council of the republick of Bern, and vice-preſident of the Oeconomical Society. It is to the quickneſs of his perception, the attachment and zeal with which he coincides

(5) This nobleman is the celebrated author of that excellent work, *L'Ami des Hommes, ou Traité de la Population*; which has been read with amazing avidity in moſt parts of Europe. It is an admirable performance, and greatly deſerves the attention of this country. How much more deſerving a tranſlation than the frippery works we are ſo eager to copy? *

with

with every good and uſeful meaſure, explaining and perſuading others to reliſh it; and ſtill more to that arduous reſolution which ſurmounts all obſtacles, and captivates all minds; in a word, to his excellent plans, and indefatigable ſolicitude, that the Œconomical Society of Bern, one of the firſt eſtabliſhments in Switzerland, and really an honour to human nature, owes the active principles of its inſtitution. On communicating the foregoing letter, his complaiſance led him to write the following, where he objects, or accedes with ſome reſtrictions, to the opinion of the Marquis de Mirabeau. We muſt refer it to the moſt intelligent and experienced of our farmers to determine between two perſons equally reſpectable, and influenced by the ſame benevolent motives. My conjecture is, that they will pronounce in favour of both: of Monſieur de Mirabeau, for the culture of large farms in particular countries, perhaps in France univerſally; and of M. Tſchiffeli, in regard to thoſe in Switzerland, and poſſibly in all ſmall farms.

Letter from Monſieur Tſchiffeli.

SIR,

ALL the obſervations of the Marquis de Mirabeau on the contracted and narrow ſcale of huſbandry purſued by our Kliyogg, may be reduced to one general queſtion. Is it more profitable to plow with horſes or with oxen? Undoubtedly, a very material enquiry, which deſerves a thorough examination in every country, diſtrict, or particular eſtate, under all poſſible circumſtances.

The authority of Monſieur de Mirabeau, the firſt genius, perhaps, of the age, in comprehending the true principles of agriculture, is undoubtedly of conſiderable weight: nor can any perſon have a more exalted reſpect for that nobleman's knowledge and zeal for the good of mankind. I know him under

the title, ſo juſtly acquired, of *l'ami des hommes* [the friend of men.] But we are each of us in ſearch of truth. I am under no apprehenſions of offending him by differing in opinion on a capital point of agriculture.

I eſtabliſh it as a univerſal rule, that wherever the roads are not exceſſively ſtony, nor the ſoil of an eſtate extremely light, it is of more general advantage to uſe oxen for draught than horſes, with ſome exceptions, however, where the trade of horſes is conſiderable, and that of horned cattle ſcarcely opened at all: inſtances rare in all parts of the world, and ſeldom, or never, met with in Switzerland. My remarks will be chiefly confined to that country, as the only one I am ſufficiently acquainted with, to give my opinion with propriety.

The only ſenſible advantage of horſes over oxen, either in drawing or plowing, conſiſts in the greater vigour, activity, and ſpeed, with which they expedite their work: all things elſe are equal; for experience evinces, that four very robuſt oxen, forward as much buſineſs as four horſes indifferently maintained without oats (1), according to the common cuſtom of the peaſants. But the equality granted, I ſet at one third the ſuperior ſwiftneſs and vigour of horſes, that is, I allow four horſes to do the ſame work as ſix oxen, which is all I can poſſibly grant, and ſome labourers of good judgement, whom I have conſulted, will ſcarcely admit one fifth difference. The general prepoſſeſſion here in favour of oxen, may, perhaps, account for this. You will pleaſe to obſerve, Sir, that this advantage, however great it appears, will be immaterial, in all farms, that, like ours in general, are too ſmall to employ a team of horſes throughout the year. Our fortunes are too contract-

(1) Horſes maintained without oats! What are we to underſtand by this?

ed,

ed, our corn countries too populous, and our eſtates too dear, to admit of making extenſive purchaſes.

Fifty acres of arable land, the ſame quantity of meadow, and paſturage in proportion, are, with us, conſidered as large farms: there are very few of greater dimenſions. Nay, it is found by experience, that an eſtate of that ſize ſeldom produces more than half what is made of the ſame number of acres divided between two or three occupiers. If there is not ſufficient employment for draught horſes upon the farm all the year, they muſt either be turned upon the ſtubble, or uſed in road carriage of goods for tradeſmen: in the firſt caſe their keeping is more expenſive than that of oxen; and in the ſecond, the plowman become a waggoner is on the road to ruin; fatally exemplified in ſome parts of the Païs de Vaud, where miſerable teams of horſes periſh with fatigue and hunger in road waggons. Their manure is loſt to the land; the plowman commences a drunken carrier, is quarrelſome and diſſipated; habits very improper for a huſbandman, the baſis of whoſe art is temperance and application.

M. de Mirabeau, in his letter, computes the maintenance of horſes to be three times dearer than that of oxen; but ſays at the ſame time, that the expence ſhould firſt of all be deducted from the clear profit of what he calls the grand ſcale of huſbandry, which, after ſuch deductions, he makes amount to more than ten times the money that has been expended. But he will permit me to obſerve the impoſſibility that ſuch luxuriant crops can be merely the effect of plowing with horſes: with our draught oxen we certainly cut as deep, and equal furrows as can be performed with the beſt horſes. We beſtow three, and ſometimes four plowings upon fallow lands, and very often two in the common field culture. I very much doubt if theſe be carried much farther in France; and, perhaps, there is not any country in Europe where the ſoil is more

carefully cultivated than in Switzerland; yet our harveſts are vaſtly inferior to thoſe the Marquis ſpeaks of. It does not ſeem to be from what cattle are uſed in the plough, but from the richneſs of the ſoil and warmth of the climate that we muſt inveſtigate the cauſe: and if the fact is certain, that in France, after the deductions made for the extraordinary expence of horſes, the clear produce is ten to one greater, the high price of fatted cattle muſt be a ſtill farther additional profit to the grazier.

Our manner of calculating in Switzerland is thus:

The ſubſiſtence of ſix oxen, at about three or four years old, does not coſt more than that of four draught horſes (2), including the expence of forage. This has been tried and verified by a thouſand inſtances, ſo that every labourer will decide in favour of oxen: the latter are infinitely leſs delicate than horſes, are leſs liable to diſtempers and accidents, and are much more regular in labour.

As our land is, in general, hot and gravelly, the manure of oxen is greatly preferable to that of horſes.

Eating their food ſo much quicker than horſes, is an article that gains two hours daily; one of which, at leaſt, may be employed in working.

The manure of horſes waſtes and evaporates in the farm yard, or field, much more ſpeedily than that of oxen; and we are perfectly convinced the value of the cattle exceeds, in general, that of horſes a fourth part, and ſometimes one half.

Theſe are no inconſiderable advantages, but that which far ſurpaſſes them is, that every cultivator, who has the leaſt degree of underſtanding, may annually

(2) This is a valuable fact: now if their oxen are equal to thoſe I uſed in Suffolk, what an amazing ſuperiority to the ox culture! Theſe points of proportion, the expences of certain practices, &c. are very important circumſtances, as it is upon a ſelection of ſuch that theſe diſputable points can alone be reconciled *.

nually make of every team of four oxen, a clear profit of 6l. 11s. 3d. or 7l. 17s. 6d. ſetting their food in oppoſition to their labour. If he buys his beaſts at three years old, and ſells them again at four, there is almoſt an abſolute certainty of his gaining a louis and half, or two louis a head. This advantage may be extended much farther when the peaſant has a right in any public paſturage, and can breed his own cattle. Whoever has been informed, that in the greateſt part of Switzerland, particularly in the German diviſion of the canton of Bern, a pair of oxen of three years old, that have been in good paſture, commonly ſell from ten to fifteen louis, will not be ſurprized at what I have advanced.

It is far otherwiſe with horſes: beſides that their price is ſubject to very great and frequent variations, there is danger in uſing young horſes for heavy and conſtant labour. The ſlighteſt accident to a draught horſe may be a very ſenſible loſs to the farmer, whilſt a lame ox is not a ſtraw the worſe to be fatted for market. On the other ſide, if the farmer plows with horſes in their full vigour and ſtrength, he has no other advantage to expect than the time they are able to work. He ſinks a large capital, which, inſtead of proving beneficial, waſtes every day, and is reduced to nothing at the end of a few years. All theſe conſiderations induce our moſt judicious cultivators to rate the advantage of drawing with oxen inſtead of horſes at 8l. 15s. one year with another (3).

I have the honour to be, &c.

Farther

(3) This reaſoning is ſenſible; and as it coincides with our experience in England, on this compariſon, there is the greater reaſon to acknowledge its juſtneſs. The arguments here uſed, are the ſame as we here moſt commonly uſe among ourſelves in thoſe counties where oxen are yet worked. Upon the whole, this compariſon of horſes and oxen highly deſerves a farther attention. The Marquis de

Farther Anecdotes concerning the Family of Pineon, mentioned by the Marquis de Mirabeau.

IN the Journal Œconomique for December 1755, are two memoirs of the origin of the Pineon family. I apprehend an abſtract of them may be agreeable to thoſe readers who have not had an opportunity of meeting with the journal. The facts related are too analogous to the conduct of Kliyogg for me to fear the cenſure of impropriety in placing them together.

At ſome leagues diſtance from the town of Thiers in Auvergne, is a very habitable caſtle. It was formerly the capital ſeat of a ſmall barony, called Saudon. About four hundred years ſince it was purchaſed by a peaſant who had a numerous family, in whoſe poſſeſſion it has continued hereditary to this day. This family obtained, at the ſame time, a perpetual diſpenſation from the pope to marry within thoſe degrees where marriages are deemed unlawful without one. Such a mark of conſideration is a proof of the virtuous regulations that then ſubſiſted amongſt theſe honeſt people, and likewiſe their apprehenſions of relaxing their diſcipline and the ſtrictneſs of their manners, ſhould they form improper connexions in their mode of expreſſion, that is, marry out of their own family.

They have a tradition, which carries their origin much higher: that eleven hundred years ago, one of

de Mirabeau, in a preceding paper, quotes the Encyclopedie on this ſubject: I have read the memoirs of that work on the ſubject of agriculture; they are extremely ſenſible, and call aloud for a tranſlation into Engliſh. Among other articles, they contain an elaborate compariſon between horſes and oxen, decided in favour of the former. This compariſon abounds with many circumſtances very curious, and throw much light on the ſubject, and at the ſame time explain, in a good meaſure, the reaſon why the French preſer horſes ſo much *.

their

their anceſtors, a man of great wealth, the father of a numerous progeny, and advanced in years, recommended ſome reflexions to his children: "That their "ſplendid way of living muſt be greatly diminiſhed, "if, after his death, they ſhould, as was cuſtomary, "divide his fortune into ſeparate portions; and that, "if they were deſirous to be better œconomiſts than "the generality of men, he adviſed them to live in "the ſame united ſtate they had done under his pa-"rental roof." They did not fail to raiſe many objections to this propoſal; the moſt weighty one was, the privation of an authority, ſuch as he had exerciſed, which his ſuperior wiſdom rendered ſo reſpectable. He had foreſeen and guarded againſt all the difficulties they feared; and replied, that good inſtitutions, firmly eſtabliſhed, would defend them from all inconveniencies capable of fruſtrating their ſcheme. The father compoſed a code for the uſe of his children, which they moſt cordially accepted, and have religiouſly obſerved ever ſince.

By theſe laws the whole parental authority devolves to a general aſſembly of the family. This aſſembly diſcuſſes their various intereſts, applies remedies to their grievances, decides what meaſures are moſt eligible. A man is not admitted to theſe deliberations till he is twenty years of age. The aſſembly appoints a preſident to paſs money accounts, ſign reſolutions, and conduct affairs in general; but he is reſtrained within the diſpoſal of ten piſtoles in any emergence; beyond that ſum the aſſembly muſt determine.

They never require of the preſident an account of his adminiſtration; nor have they ever repented this ſingular confidence. Their great maxim, and the foundation of all their rules, is an implicit reverence for their own family, which is inſtilled in infancy. This principle is characterized in many anecdotes of their lives. Their ſecond maxim is, never to ſoar above

above their original rank. Thus the Pignons (5), which is the family name, have never varied from other peaſants in the cuſtoms of dreſs, food, and lodging. They are called by their chriſtian name: the preſident alone has the title of Mr. They call him Maſter Pignon. All follow the plough with their labourers.

The children are educated in common without any diſtinction, by a woman entruſted with the care of them to a certain age. She has alſo the ſuperintendance of the dairy, and the ſole direction of the ſervants belonging to it.

The family rules extend to domeſticks, who are to be preſent at morning and evening prayers, and regular in the practice of all Chriſtian duties.

If any of the younger branches of the family are tempted to detach themſelves from it, they receive a decent and juſt dividend of the public money. It generally happens that theſe repent, and are deſirous to return; but this is a hopeleſs wiſh, and againſt the rules of the Society, which allows no re-admiſſion to thoſe who once abandon it. Notwithſtanding a great decreaſe by ſickneſs for ſome years paſt, there yet remain eight heads of families.

The Pignons make the moſt laudable uſe of wealth. They are charitable to the poor and hoſpitable to ſtrangers: they are beloved, eſteemed, and honoured. Many noble families, as well as thoſe of peaſants, have unſucceſsfully attempted to imitate their rule of life. The former have degenerated into parties of pleaſure; the latter found it impracticable to arrive at that point of concord and proſperity which diſtinguiſhes the family of Pignon. Undoubtedly none of thoſe have laid the ſame permanent foundation for the happineſs they were in ſearch of, in piety, benevolence, diſintereſted-

(5) M. de Mirabeau calls it Pineon; but I ſuppoſe Pignon is the provincial way of ſounding it.

neſs,

neſs, ſimplicity, and attachment to agriculture, qualities, without which it is impoſſible to form a ſociety, or procure peace and competence.

Several intendants of that province have gratified their curioſity in viſiting the Pignons. M. le Blanc, ſince ſecretary at war, dined at the caſtle, was honourably entertained, and inſiſted on Maſter Pignon's preſiding at table. Delighted with their manners and cuſtoms, he made a recital of them to Louis XIV. Some time after Maſter Pignon was obliged to go to Paris on particular buſineſs: he paid his compliments to M. le Blanc, who preſented him to the King. Louis aſked him ſeveral queſtions, and was ſo charmed with his replies, that he ordered the tax of the Pignons ſhould never exceed ſix hundred livres; and made him a preſent to defray the expence of his journey.

Theſe are the moſt intereſting particulars in the firſt memoir. The ſecond differs from it in ſeveral articles. It is true they were wrote in different years; the firſt is dated in 1739. The ſecond is a recent account, but this does not ſufficiently explain the variation between them. How much it is to be wiſhed that the Marquis de Mirabeau, or ſome other friend to human nature, would take the trouble of receiving exact and circumſtantial information on the ſpot, of all that relates to this extraordinary family! The public would eſteem it an invaluable preſent. In expecting that pleaſure, I ſhall give the purport of the ſecond memoir.

The Pignons, maſters of Saudon, about half a league from Thiers in Auvergne, have lived there near three hundred years. Their common eſtate brings in more than two hundred thouſand franks, conſiſting of meadows, vineyards, arable land, and other heritages. But they have no lordſhips or manors, excepting the fief of Saudon, which is of ſmall value.

This family has branched into four diviſions, who live together within the ſame walls. There are four

chiefs of the family, who keep with honour equal number of both ſexes, who chooſe to intermarry and ſucceed their parents, whilſt the reſt of the children are ſettled in the adjacent villages with a fortune of 21l. 17s. 6d. The daughters have alſo a cheſt of linen, and ſome houſhold furniture of ſmall value, ſuch as the peaſants require; the Pignons not being, in outward appearance, different from their labourers.

The maſter is the only man amongſt them who wears leather ſhoes. The women wear them becauſe they never work in the field. There is particular care beſtowed on their education. They are maintained in a convent at the public expence, till of an age to become a part of ſociety. If it happens that one branch of the family has only a daughter, who is conſequently heireſs to one fourth part of the eſtate, they contrive to marry her to the ſon of another branch, to keep up the number of their chiefs.

They take care to impreſs their children's minds, ſo ſoon as reaſon begins to dawn, with the higheſt reſpect for their own family and its inſtitutions; nor has there ever been an inſtance of any of the chiefs entertaining the moſt diſtant idea of ſeparating from the community, nor of any of the ſons or daughters, who have left the caſtle, deſiring any addition to their fortune, ſmall as it is. About forty years ago, the widow of one of their chiefs, who had an only daughter, was ſolicited to marry one of the neighbouring gentlemen, as a means of eſtabliſhing her daughter, who, with the large fortune ſhe was entitled to, might expect to be very advantgeouſly diſpoſed of. This worthy woman anſwered in her provincial dialect, ſhe never could conſent to put ſuch an indignity on the family and cuſtoms of the Pignons!

Though property is equally divided amongſt the four chiefs, the principal authority reſts upon the maſter, who is choſen from the reſt.

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The caſtle is large, but the apartments are furniſhed in the moſt plain, ſimple taſte. M. de la Granville, who was travelling that way, ſtopped at Maſter Pignon's. Some of the company were for adviſing the maſter to furniſh an apartment elegantly, as a mark of diſtinction; but the intendant, wiſer than they, demonſtrated to them that this uniform ſimplicity was eſſential to ſuch an eſtabliſhment, and that when once they made a diſtinction in apartments, it would be ſoon followed by other innovations that would interrupt the happineſs of this little republic.

The Pignon family are remarkably bountiful to poor travellers, who are cordially received, fed, and even lodged, if they chance to be benighted: they alſo receive their gueſts with civility and reſpect, providing the beſt entertainment in their power, according to the difference of rank, which makes them exceedingly honoured and eſteemed in the province; and what Maſter Pignon decides, in any controverſy, paſſes in general, with the peaſants, for an infallible decree.

I cannot forbear communicating the pleaſure I received from the rational, judicious reflexions of the journaliſt at the end of this memoir, with which I ſhall conclude. "We ſhould accuſe ourſelves," ſays he, "if we neglected to recommend to obſervation, "theſe ſolid effects of agriculture: the plenty it "procures, the concord it maintains, the tranquillity "it beſtows! By its influence, labour is ſoftened, jea"louſy extinguiſhed, equality reſtored! What extra"ordinary bleſſings may we not hope to obtain, if the "moſt intelligent and enlightened perſons were ani"mated with zeal for rural œconomy, when we ſee it "productive of great wealth even amongſt ſimple pea"ſants! What an acceſſion of opulence and ſtrength "to a ſtate, to have a collection of theſe ſmall re"publicks formed within itſelf! A manly and ſub"lime ſimplicity would ſucceed to effeminate luxury:

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" moderation, the daughter of induſtry, would be " aſſiduous in making a proper uſe of riches thus " acquired, and mankind would at laſt be convinced, " that the moſt infallible means to defy poverty, is " reſolution to renounce the allurements of affluence, " and to fly, with precipitation, from thoſe immode- " rate indulgencies which wealth can purchaſe. " Children, educated in theſe maxims, would renew " that purity of manners, whoſe loſs is more to be " regretted every day; whilſt the earth, cultivated " by their innocent hands, would no longer diſap- " point by its ſterility, chimerical expectations. Surely " we have more reſources than the terrible conſequen- " ces of a dreaded revolution to bring us back to a " life which has nature for its guide."

Anecdotes of the Family of Fleuriot, known in Lorraine by the Name of Valdajon.

THE piece before us is a production of the Count de Treſſan's (1). In reading the Rural Socrates, he recollected the ſeveral particulars of a journey he took ſome years ſince, from a curious deſire of gaining a perfect information concerning a family of peaſants, as philoſophical, and perhaps even yet more to be revered than Kliyogg's; whoſe character and inſtitutions peculiarly affected the penetrating humanity of M. de Treſſan. He not only paid due deference to the proceedings of M. Hirzel, but the friendſhip which he condeſcended to honour me with, palliated, in his indulgent breaſt, the imperfections of my tranſlation; nor did he diſdain to oblige me with

(1) Lieutenant General in the French ſervice, governor of Bitſch and German Lorraine, lord chamberlain of the houſhold to King Staniſlaus, and member of the academies of ſciences at Paris, Berlin, London, Edinburgh, Nantz, Metz, &c.

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a copy of his own memoirs of the Fleuriots, as an appendix to the Rural Socrates: where one diſcerns the ſame engaging ſenſibility of heart, apparent in every thing he writes. Why will his modeſty forbid me to praiſe him to the world? It would not be the luſtre of his birth or employments, his military honours, or martial talents, that I ſhould enumerate: the literary diſtinctions granted to the univerſality, comprehenſiveneſs, and elegance of his genius; the charms of his wit, or that profuſion of graces in his perſon, converſation and writings, that would make the moſt intereſting part of my elogium! The wiſe and virtuous part of mankind, would have more ſubject for admiration from the beauty of his ſoul; the ſingular goodneſs of his heart; that expanſion of its beneficence and humanity to all within its circle of obſervation: that ineſtimably tender ſenſibility, which makes good huſbands, kind fathers, and true friends: in fine, thoſe virtuous ſentiments, which are productive of the moſt ardent zeal for his country, and the moſt affectionate regard for his royal maſters.

Perſonally attached from infancy to the King of France, he ſeems to live only to ſerve him. He is tenderly devoted to the Dauphin, and that Prince, whoſe virtues are a ſufficient title to the throne he is born to, by a juſt return, gives M. de Treſſan all his confidence and eſteem. Equally beloved by Staniſlaus, he fills one of the firſt employments in his court. This wiſe, learned, and philoſophical monarch could never beſtow his favour on a more worthy ſervant, and few maſters have ſo well merited to be ſurrounded with men like M. de Treſſan! Nothing is more ſtriking than the reciprocal ſentiments which unite the General and this beneficent Prince, whoſe uncommon excellence is ſo much ſuperior to my pen!

A league and a half from Plombieres, in that part of the Voſges, which borders on Franche Comté, a

pretty extenſive valley is formed by the ſeveral openings betwixt the hills, which has a pleaſing and chearful appearance from the viſible ſkill and aſſiduity of the induſtrious cultivators.

They conſiſt of a ſingle family, who occupy four or five houſes: they are brought up in the ſame principles and equality, are governed by a chief, whom the community gives the preference to, from his ſuperiority of wiſdom and experience: they are inceſſantly employed in aſſiſting the public, in educating their children, in comforting the diſtreſſed, and in tilling the ground.

This family, whoſe name is Fleuriot, is better diſtinguiſhed by that of Valdajon, which the country and village bears that it inhabits.

For ſome centuries paſt the chiefs have principally ſtudied that part of ſurgery which conſiſts in curing fractures and diſlocations. Repeated cures have added reputation to their knowledge; whilſt remarkable piety, and immenſe charity have juſtly acquired them the character of virtuous men.

The moſt peculiar modeſty, the ſincereſt paternal tenderneſs, are conſpicuous in the manners of this happy family, which is now ſufficiently numerous and remote from thoſe near ties of conſanguinity that might, in early inſtitutions, have obliged them to contract foreign alliances.

The late Duke Leopold, touched with admiration of the virtues inherent in the Fleuriots, and ſenſible, that, by a ſucceſſion of good offices to their fellow creatures, they merited a Civic Crown, and had proved the greatneſs of their ſouls by the moſt diſintereſted benefactions, was deſirous to ennoble them.

The family aſſembled, and the heads of it were unanimous to return their grateful thanks to their ſovereign for the honour he intended them, and to decline the acceptance of it. "Our poſterity, ſaid they, in an addreſs equally wiſe and dutiful, may, perhaps,

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ſee objects in a different light from ourſelves; intoxicated with the pride of nobility, they may diſpenſe with the duty of relieving the poor; deſpiſe the cultivation of their eſtate: the bleſſing of heaven will no longer proſper their undertakings; diſcord will divide their affection, they will ceaſe to be happy." They refuſed a patent of nobility, but that traced in their ſouls muſt always remain indelible!

The cures performed by the Fleuriots are almoſt incredible, and have often excited jealouſy and envy.

The firſt time I was at Plombieres, I informed myſelf particularly in what related to them; as I commanded in that part of Lorraine, it was eaſy for me to inveſtigate the truth of all I wanted to know.

Some with whom I converſed, talked of the Fleuriots with as much regard as admiration; whilſt a very ſmall number, who, I thought, ought to have underſtood the ſubject beſt, ſeemed deſirous to varniſh with ſuperſtition and ignorance the proceſs of the Fleuriots in their ſurgical operations. Truth appeared to me cleareſt in the moſt favourable reports: I regarded it as an honourable duty to examine facts with my own eyes, and to take proper precautions not to be deceived.

As I have always, at leiſure hours, made anatomy one of my ſtudies; I underſtood enough of it to diſtinguiſh real ſcience from impoſture.

I rode to Valdajon privately, with only one attendant, in a plain dreſs, as a ſtranger that chance had brought to their habitation. I ſtopped at one of the firſt houſes, and, on my entrance, every thing I ſaw edified and affected me. It is with difficulty I reſtrain my inclination to deſcribe minutely the neatneſs and regularity of the apartments and furniture, with the friendly civility of the inhabitants. I recognized the ſimple and engaging marks of genuine hoſpitality. As the peculiar motive of my journey was to know the degree of knowledge the moſt ſkilful practitioners

titioners among them had attained in an art founded on certain and infallible principles; after ſome comfortable refreſhment, I admired their ſyſtem of rural œconomy and their interior domeſtic government. I then enquired if they had any books; they anſwered, that their chief collection was in a houſe at a ſmall diſtance, belonging to one of the ancient chiefs of the family. They carried me there, and I was received by a venerable old man, who, under an air of ruſticity, diſplayed the moſt obliging politeneſs. It was eaſy to introduce the ſubject: I enquired what were the principles of the art he practiſed. He replied, "Nature, experience, and good books, were the only inſtructors of my forefathers; they are mine, "and this tradition ſhall be tranſmitted to my children." He then opened a large cloſet, of ſimple architecture, but rich in the furniture it contained: I here found the beſt collection of ancient and modern chirurgical authors; ſkeletons of four or five different ages; ſome of whoſe parts were diviſible, and, when taken in pieces, ſhew the ingenuity of an artiſt in their re-union: alſo ſome curious figures that explain the muſcular ſyſtem, or myography.

In this apartment, ſaid he, we ſtudy that ſcience which is neceſſary to the relief of our fellow creatures. We alſo teach our children to read, and to underſtand what they read. Thoſe who have genius and diſpoſition for it know the names and uſes of the ſeveral parts of anatomy before they are ten years old: they can ſeparate and join them together. Here is a large preſs, filled with ligatures and bandages for every kind of operation, all numbered, with their uſes defined. We accuſtom them, very early, to unite practice with theory. The greater part of thoſe goats you ſee browzing, even our dogs, are often the victims of that ſpecies of cruelty we are neceſſitated to exerciſe upon animals. To appeaſe that ſenſation of pity we wiſh to excite in the hearts of our children for their complaints

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and ſufferings, they are eager to be inſtructed how to heal them. Theſe are all the leſſons I ever was taught: they are ſuch as we bequeath to our children, and the benediction of the Supreme Being attends our endeavours for the good of mankind.

I am unable to expreſs the reſpect and tenderneſs I am impreſſed with. I embraced this worthy old man. I diſcovered who I was, and entreated him as a favour that he would acquaint me how I could be of real ſervice to himſelf, or any of his family.

He pointed to the houſes in the valley, ſurrounded with corn-fields and gardens. "The proſpect before "you," ſaid he, "gratifies the extent of our wiſhes. "Providence has been bountiful to our labours; we "have even ſomething to ſpare for the wants of the "unfortunate. Every ſuperfluity, beyond what our "ſmall expence in dreſs and food requires, would "be unneceſſary; it might even become pernicious, by "inſpiring our deſcendants with an inordinate de"ſire for wealth and opulence. But, Sir," added he, "you have the happineſs to enjoy a diſtinguiſhed of"fice in the court of our dear and auguſt Sovereign "Staniſlaus! Vouchſafe to acquaint him we offer our "fervent prayers to heaven for the continuance of "his precious life; and that the Fleuriots will always "endeavour to be uſeful to the wretched, that they "may deſerve to be ranked amongſt the moſt loyal "ſubjects of the moſt beneficent of all monarchs!"

If relations of the moſt diſſimilar and compound fractures, cured in the ſame ſubject, were required, I could give ſeveral that were completed under my own obſervation.

The Marquis de Voyer and Monſieur de St. Lambert, whoſe genius and underſtanding are univerſally allowed, have had equal curioſity with myſelf, and are ready to certify the fact. I ſhall not enter into a detail of their experiments in agriculture: it is eaſy to conceive that perſons ſo intelligent and well-

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read in the book of nature as the Fleuriots, have acted, nearly, on the ſame principles with the wiſe and induſtrious Kliyogg. A parallel between them could not fail of doing honour to human nature, and of affording excellent rules of life. The effuſions of the feeling heart, and the approbation of the thinking head, are a juſt tribute to the virtues of theſe men, too ſeldom found in the world, and whoſe example is ſo worthy of imitation.

Can any one be ſo inſenſible to this pleaſing narrative of the Count de Treſſan's as not to be deeply impreſſed with his deſcription of the Fleuriot family, and deſirous to be minutely informed of every circumſtance that concerns them? The Journal Œconomique for December 1755 (already quoted), has an intereſting letter from Mr. Morand, M. D. of Paris, whoſe teſtimony would be very deciſive, if any could be wanted after that of Count Treſſan's. The Doctor's was a more tranſient view than the Count's, but he ſaw the moſt eſſential part in the ſame light.

He does equal juſtice to the abilities of the inhabitants of Valdajon; was equally accuſtomed and delighted with the ſimplicity of manners, conduct, food, and dreſs: "Content with their lot," ſays he, "they "confine their wants to the plain neceſſaries of life, "rejecting all beyond them as ſuperfluous. Their table is "furniſhed like the ordinary peaſant's; like him they "eat rye-bread and bacon, and water is their only be-"verage! They attend to the employments of agricul-"ture alternately, never ride, and are unwilling, on "any occaſion of abſence, to return home in a car-"riage. Gold and the trappings of wealth, vain "phantoms of happineſs! are baniſhed from their "hearts: two or three louis are, in their opinion, too large "a fee from rich men, which they have ſeveral times "refuſed, and are contented with ſix or twelve franks "at moſt. Every Tueſday ſome of them go to Ke-

"miremont,

" miremont, the reſt of the week to Plombieres and " other adjacent villages. At theſe places they have " ſometimes forty poor patients with bruiſes, contu- " ſions, and diſlocations, whom they attend and cure " gratis, or without conſidering who is to pay them! " They even frequently ſupply them with money to " return home, and give them a box of their oint- " ment, which is their greateſt ſecret and their greateſt " treaſure. They affirm their family poſſeſs the true " receipt of a ſovereign balſam, known by the name " of the Valdajon ointment, which is in high repute " in Lorraine, and is a very good reſolvent medicine, " lenient, and ſtrengthening of the nerves. The fa- " mily of Valdajon uſe it in contuſions, irritations of " the nerves, laxativeneſs, fractures, and even where " there is danger of gangrene. It alſo aſſuages the " pain of the gout or rheumatiſm. They only ſpread " it on lint, without warming the ointment."

Who can have any doubts remaining, after theſe inſtances of the Kliyoggs, Pignons, and Valdajons, that Dr. Hirzell has not the ſtrongeſt reaſon to affirm that the claſs of peaſants is as well worthy of philoſophical inſpection as any other race of beings? Let the agreeable man of faſhion confine his attention to the marks of diſtinguiſhed breeding and education, only to be met with in what he calls the beſt company. Let the merchant viſit thoſe countries where commerce flouriſhes, to gain an inſight into the mercantile talents, abilities, and nature of traffic carried on by his neighbours. Let the man of taſte, the admirer of the fine arts, examine the cabinets and galleries of the great, the laboratories of the artiſt: let the indefatigable antiquary pore over the monuments of remoteſt times; but let the true philoſopher, the friend of humanity, employ his hours in the ſearch of men truely virtuous! diſcover them through the ſhade of obſcurity, ſhining in thoſe ranks of life that are deemed moſt abject in the opinion of the ſo much

boaſted polite circle; he will ſurely meet with ſome of theſe Kliyoggs, Pignons, and Valdajons, who are yet unknown; for true merit ſhuns the blaze of admiration, and remains invariably attached to that ſtate of ſimplicity with which the world diſdains to be acquainted. The true philoſopher will neglect no opportunity of ſtudying their manners, or of communicating them to the public; like Treſſan, he will travel to their cottages, or, like Herzill, he will ſeek them at the plough: he will be eager to paint their virtues and good actions, not to flatter their ſelf-love; for to ſuch men fame has no other charm than the hope that exemplary patterns of goodneſs may, at leaſt, from their novelty, make ſome impreſſion. If repreſentation of vice ſeduce ſo many to be guilty and unhappy, why ſhould we ſuppoſe thoſe of virtue will not have the ſame efficacy?

MVSEVM
BRITAN
NICVM

FINIS.